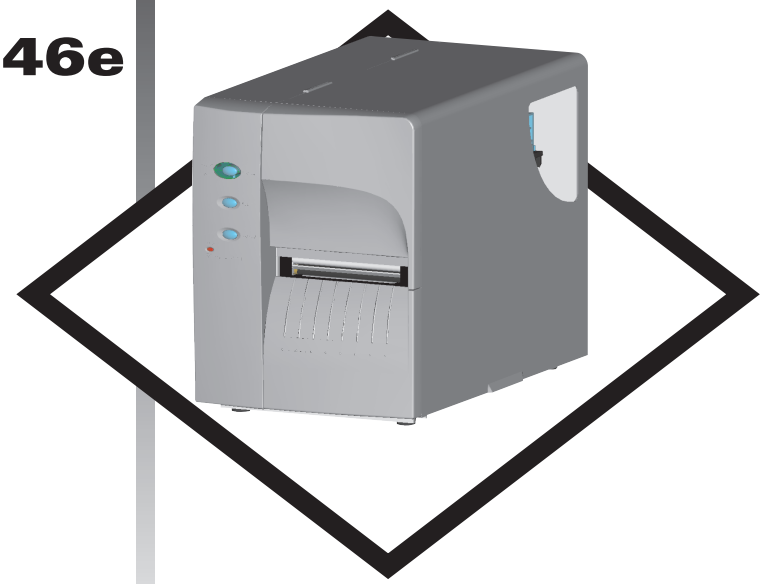
Commercial Thermal Printers Service Manual

2746e



980428-001 Rev. A

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FOREWORD

This manual provides maintenance, diagnosis, service and repair information for the 2746e printer models manufactured by Zebra Technologies Corporation, Camarillo, California.

TECHNICAL SUPPORT

If for any reason you require product technical support, please contact the Distributor where you first purchased your equipment. If they cannot help you or at their direction, contact Zebra Repair Administration.

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OPERATOR CAUTIONS AND WARNINGS

These pages describe general safety and maintenance procedures that an operator must follow. They are referenced throughout the service manual. The manual may include other warnings and cautions not displayed here.

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Warning - Shock Hazard

The printer should never be operated in a location where it can get wet. Personal injury could result.

Warnung - Stromschlaggefahr - Der Drucker sollte nie an feuchten Standorten in Betrieb genommen werden. Es besteht erhöhte Verletzungs und Unfallgefahr.

Warning - Static Discharge

The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage or destroy the printhead or electronic components used in this device. DO NOT TOUCH the printhead or the electronic components under the printhead assembly.

Caution - Printer Setup & Handling

1)When installing or modifying the printer setup or configuration, <u>ALWAYS TURN POWER OFF Before</u>:

- ***A) Connecting any cables.***
- ***B) Performing any cleaning or maintenance operations.***
- ***C) Moving the printer.***

2) Damage to the printer interface connector, accessories or enclosure may result from placing the printer on it's front bezel or backside during unpacking or handling.

Media Cautions & Tips

If poor quality, adhesive backed labels are used, with labels that DO NOT lay flat on the backing liner, the exposed edges may stick to the label guides and rollers inside the printer, causing the label to peel off from the liner and jam the printer.

Media Reload Tip

If you should run out of labels while printing, DO NOT turn the power switch OFF (0) while reloading or data loss may occur. The printer will automatically resume printing when a new media roll is loaded.

Print Quality Tip

Print density (darkness) is affected by the heat energy (density setting) applied and by the print speed. Changing both Print Speed and Density may be required to achieve the desired results.

INTRODUCTION

This service manual is intended for the field service engineer or technician. It's scope covers routine maintenance, troubleshooting and repair procedures for the printer.

Follow the parts replacement procedures as closely as possible. If you are unsure of any procedure, please contact your service representative or call the Zebra Technologies technical support group at (805) 579-1800. See our web site at www.zebra.com for a complete list of international support options: printer drivers, software, firmware, FAQ's, contacts, supplies, etc..

Zebra Technologies stocks all Zebra replacement parts for the printer. Be sure your facility stocks sufficient parts so that scheduled maintenance can take place in a timely manner.

Unpacking the Printer

Printers are carton shipped and wrapped inside a protective bag. Keep all packing materials in case you need to re-ship the printer later or store the printer for any length of time.

Preparing a Static-Safe Work Area

Prepare a static-safe work area before opening the printer for repair. The area must include a properly grounded conductive cushioned mat to hold the printer and a conductive wrist strap for the technician. ESD protective devices are available from most electronic supply stores or by contacting 3M corporation at (800) 328-1368.

Environmental and Shock Protection

Extreme temperature and humidity fluctuations or mishandling can damage the printer and power supply. Allow 30 minutes or more before opening the printer's plastic bag. This time allows the printer to stabilize temperature especially after storage in a cool, dry location and then placement in a warmer, more humid location. Warm, humid air condenses on the cool components of the printer and this condensation may damage the components.

Move the printer carefully. While the printer has sturdy construction, mechanical damage can certainly result from falls or rough handling.

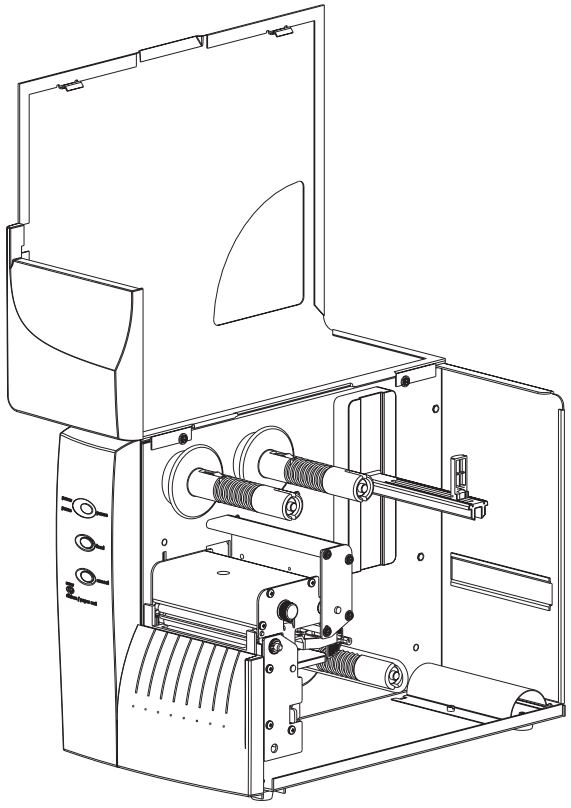
Models

Many of the earlier model Zebra printers are similar in appearance to the Zebra 2746e thermal printer. The printer features that identify the 2746e printer from similar Zebra printers are:

Print Odometer
Printer Color - Light Grey and teal (bluish green) control button on the front panel
Flash Programmed Printer Memory - No Memory Cartridge (see the rear panel of printer)
Carbon Fiber (Black) 1 inch (inner diameter) Media Roll Holder
Label Dispense (Peel) and Batch Mode Switch (see the rear panel of printer)
A High Tension Label Dispense (Peel) Mechanism
Head-Up Sensor (small sensor slot in the center panel)
300 Watt Power Supply
Expanded Language Support (14 MS DOS™ and 7 Windows™ code pages)
Industry Standard Bar Code including PDF417 and Maxicode two dimensional bar codes
Optional Cutter
Optional Real Time Clock (RTC) with a ten year battery life

2746e

Thermal transfer thermal printer has ribbon tubes above the printhead mechanism and can print in Direct Thermal and Thermal Transfer print modes.



Conventions

This manual uses the following notations to call attention to important information.

ICON / SYMBOL	MEANING
	WARNING - critical safety information.
	CAUTION - problem avoidance messages.
	STATIC SENSITIVE - follow procedures that protect against the discharge of electrostatic energy that accumulates on the surface of the human body or other objects as this discharge can damage or destroy the printhead and other electronic components.
	HEAT - The printhead becomes hot while printing. Protect against personal injury. DO NOT touch the printhead. Use only the cleaning pen to perform maintenance.
	NOTE - important instructions and reminders.
	HINT - helpful information.

TROUBLESHOOTING GUIDE

PROBLEMS	SOLUTIONS
With the STATUS indicator light GREEN, the printer appears to be working, but nothing is printed.	1. Verify the labels are the correct type. 2. Check the roll and verify that the print surface faces up for printing.
Status indicators do not light when power switch is on (I)	1. Check power connections from the printer to the outlet. 2. Remove power supply and check fuse. If blown, replace the power supply. 3. Verify power supply voltage settings, AC input voltage (110VAC or 220VAC), and DC voltage (980428-152). 4. Printer works, but no indicator light. Replace the control panel.
Printer appears to be working with the indicator light GREEN, but nothing is printed.	1. Check the connections between the printer and the cable as well as the cable and the computer. 2. Verify the labels are the correct type. 3. Check the roll and verify that the print surface faces up for direct thermal printing. 4. Check printhead wire bundle connections at main PCBA.
Printing is uniformly faded or poor quality.	1. Wipe the printhead with the cleaning pen. 2. Adjust print speed/darkness in software or with programming. 3. Check the roll and verify that the media print surface is facing up. 4. Verify the correct media is in use.

PROBLEMS	SOLUTIONS
Printing has streaks, white (non printing) lines, uneven printing (a side or sides), or faded print areas.	1. Wipe the printhead with the cleaning pen. See Cleaning and Maintenance section for information on optimizing printhead life and print quality. 2. Use the "SAVE-A-PRINTHEAD" cleaning film (P/N 44902) to remove contamination build-up. 3. The printhead is a consumable item and may be worn out, requiring replacement. Check the printhead's life with the printer information utility, see the 'Printer Information Utility',980428-157. 4. Static damage from touching the head has blown out pixels or the electronic logic circuitry in the printhead assembly. Replace the head or secondarily the main board. 5. The main board has failed components. 6. The printhead cable is loose or damaged.
Printing stops and the STATUS indicator lights RED.	1. Possible problem sensing labels with transmissive (gap) sensor. Perform AutoSense adjustment. Align the transmissive (gap) sensor position, see the user' manual. 2. Possible problem with label media. a) Gap between the bottom of a label and the top of the next label should be at least 1/16" (1.6mm). b) For tags, see Tag Media Sensing, page . c) Use only Zebra approved labels and tags. 3. Possible label jam. 4. Check that the media is correctly routed. 5. Possible software/programming problem. a) Check the printer memory configuration. b) Refer to the EPL2 Programming manual for the correct data syntax. 6. Transmissive sensor is dirty. Clean the media path.
Printer is in dump mode but nothing prints after sending file.	1. File does not contain a form feed code that will advance sheet. Press the Feed button to print data in the printer's buffer.
ASCII characters print in place of expected label art and bar codes.	1. Printer may be in dump mode. Press the Feed button to reset to normal operation. 2. Check serial port configuration using the **Y** command. See the EPL2 programmer's manual.

PROBLEMS	SOLUTIONS
Printing stops and status indicator lights red	1. Align the transmissive (gap) sensor near the narrowest gap between labels. 2. Perform the AutoSense adjustment. 3. Check that gap between labels is at least 1/16 inch (1.6mm) 4. For tags, see the discussion of Tag Media Sensing. 5. Check for media jam. 6. Check media is correctly routed. 7. Check printer memory configuration and correct data syntax. 8. Transmissive (gap) is dirty. Clean media path.
Status indicator remains red.	1. Check for out-of-media condition or missing labels in the middle of a roll. 2. Check for damage or missing labels in the middle of the roll. 3. Check for correct media routing. 4. If using direct thermal printing, check that programmed mode or printer driver is set for direct thermal printing. See the programmer's book for details. 5. Transmissive (gap) sensor may be dirty. Clean media path. 6. Check the printer carriage is closed and latched.
Rubbing noise when pressing Feed button.	1. Media is not loaded and the platen is rubbing against the printhead. Insert media between carriage and platen.
Cutter makes incomplete cuts or cuts in the wrong spot.	1. Printer is set for dispense/peel mode. Move switch to batch position. 2. Form length is set wrong. Change length through printer driver or programming language. See the EPL2 programming manual.
Printer firmware must be updated.	The printer firmware is updated by way of the parallel port. 1. Use the download utility to send firmware to the printer. 2. Optionally, you can download from the c:\ prompt by typing **copy/b *filename* lpt1:** from the directory holding the update file. The printer's light should start flashing green-orange, and then every few seconds will flash red a couple of seconds. Once the update is done, the light goes dark then comes on green.

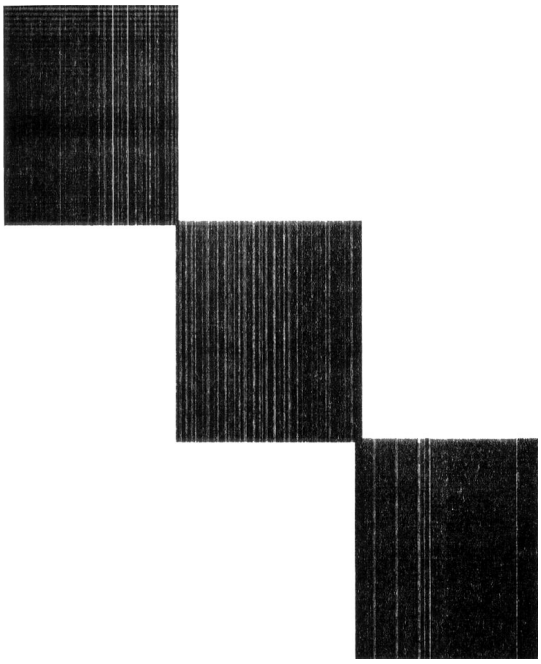
printhead Life

The printhead has a limited life and is considered a consumable item. The media rubs across the printhead print elements and wears away the surface. This process is affected by many factors relating to the media material, operational settings and environment. To maximize your printhead life, use the "SAVE-A-PRINTHEAD" cleaning film (P/N 44902) contamination build-up after every roll.

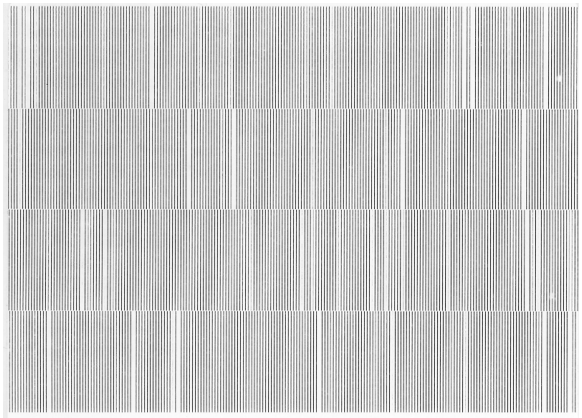
Identifying printhead Problems

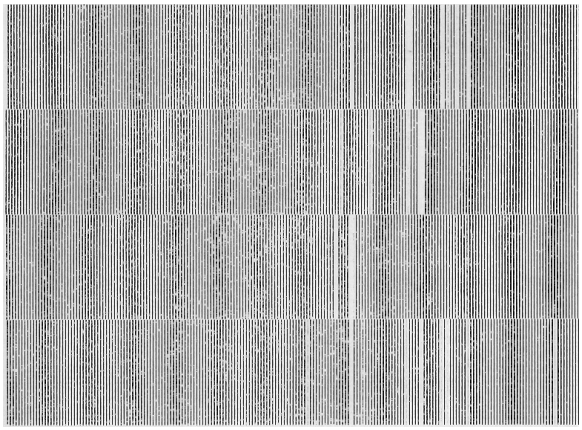
The printhead wears with printer use. If the print quality does not improve after cleaning, the printhead may require replacement. Printing with worn damaged print elements may create unreadable bar codes. printhead damage can be caused by improper cleaning (unapproved fluids or implements), electro static discharge (ESD), and touching the printhead (contaminates, ESD and body oil acids). The following are examples of printhead wear or damage.

Weak or Damaged Print Elements (Full-On Print Pattern)



Weak or Damaged Print Elements or Print Logic (Rotating Print Element Pattern)





REQUIRED TOOLS

Make use of the following tools while performing replacement procedures:

Torque wrench with 1/4" hex receptacle)
Phillips driver #1 (tip for 1/4" hex receptacle)
Phillips driver #2 (tip for 1/4" hex receptacle)
Allen key socket tip drivers (tip for 1/4" hex receptacle);
sizes: 1/16", 5/64", 3/32", 1/8", 3mm, 4mm
Nut driver, sizes: 7mm, 8mm, 1/4"
Flat Blade screwdriver (small)
needle-nose pliers
pliers for E-ring retainers (12R)
pliers for axial retainers
tweezers
Clutch torque bit (and torque gauge are spare 105902-060)
.005" shim
Loctite 222 thread locker or equivalent

REPLACING PARTS

To access some parts, you need to dissemble other parts; therefore, other procedures must be followed before and after performing a particular replacement.

Preparations

NOTE

The printer's exterior cover needs to be removed to perform most of the disassembly and replacement procedures for the printer.

Do not remove the cover until you have read all of the removal procedure steps or damage to the printer or personal injury may result.

Before starting the procedure, open the printer, then remove any media from the printer.

Shock Hazard
Always turn off the printer before performing any maintenance or repair operations. Wait for the indicator light to be dark, then unplug the power cord.

Tools:

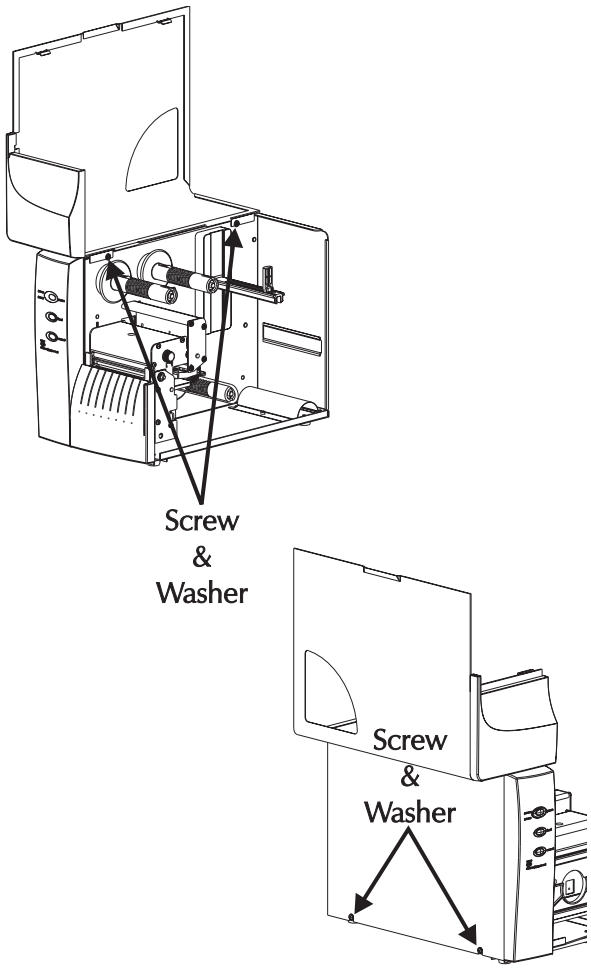
#2 Philips screw driver

Removal

1. Remove the two (2) upper screws and two (2) lower screws shown.

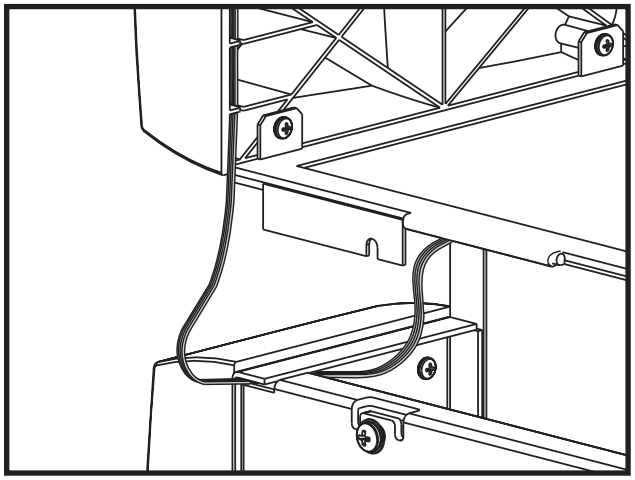
Installation

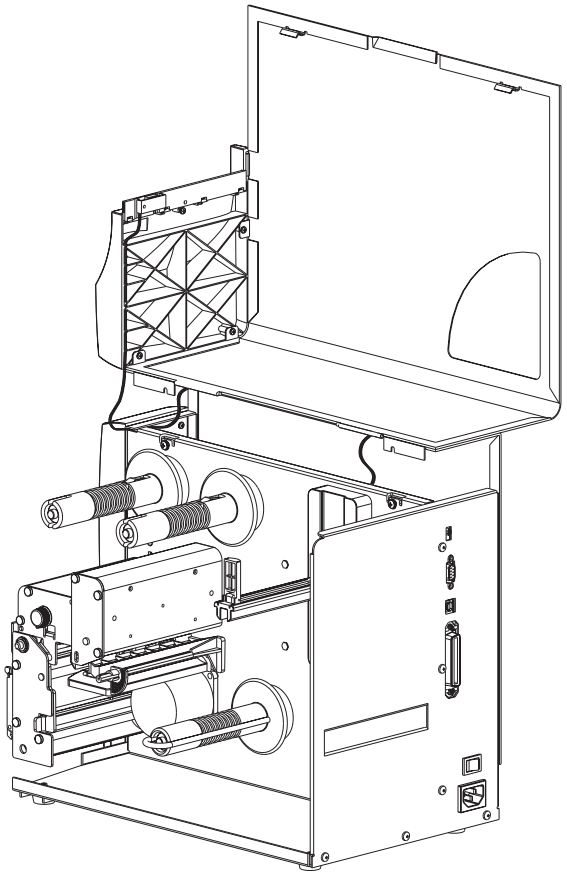
1. Place the cover in position. Secure the cover with the two (2) upper screws (and washers) and the two (2) lower screws (and washers) shown



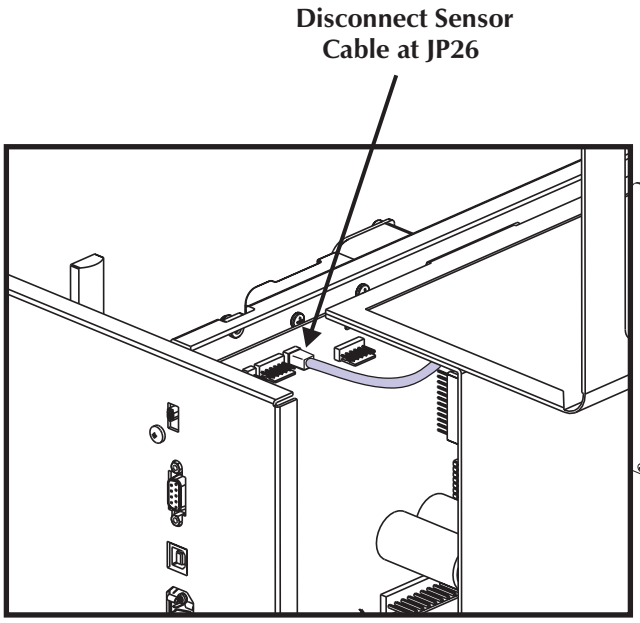
2. Lift the cover straight up about 3-5 inches.

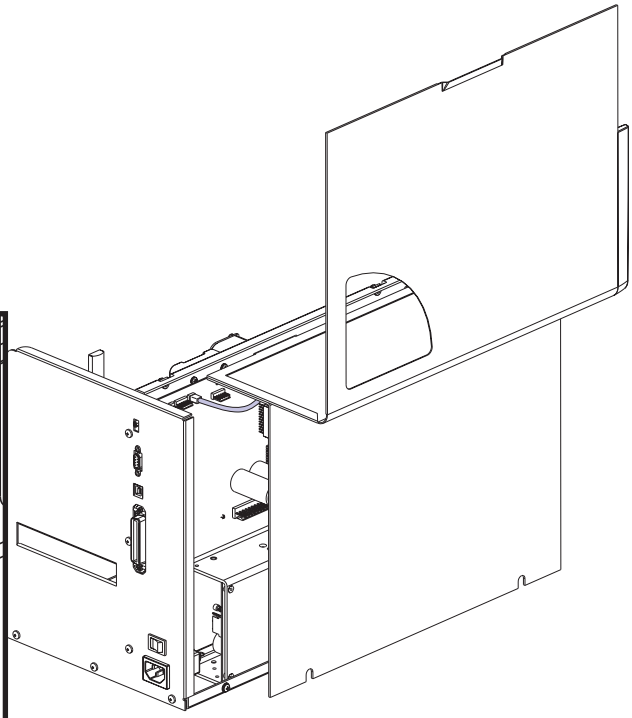
   Detach the label taken sensor's cable from the center panel. The cable is attached to the front of the printer's center wall. Slide the cable out of seam in the center and front panels.





3. Disconnect the label taken sensor cable from main PCBA located in the rear of the printer.

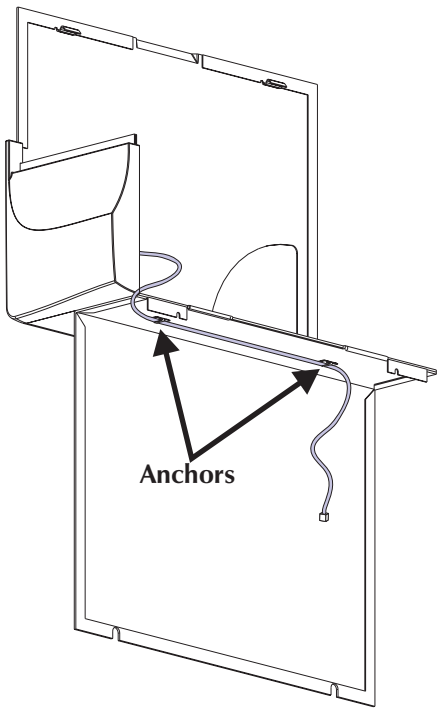




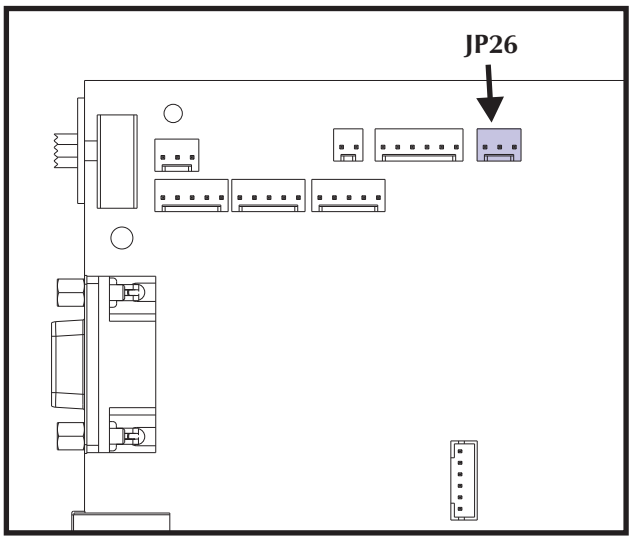
Installation

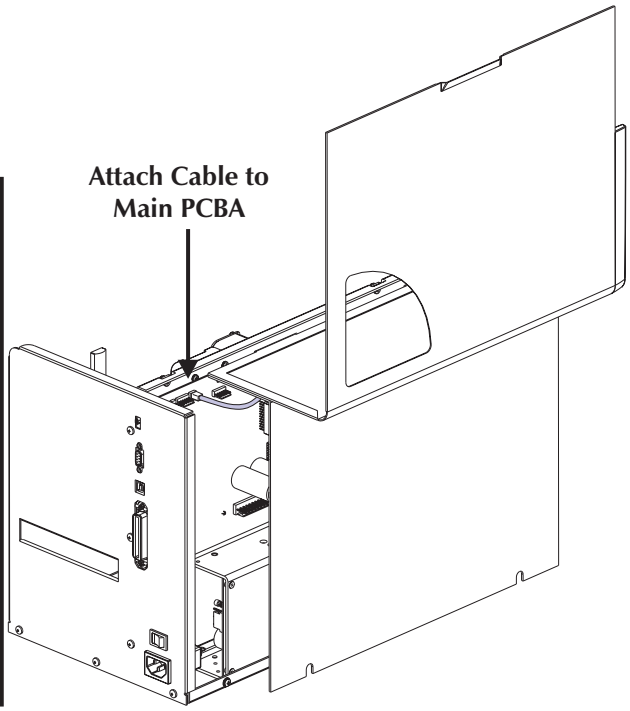
1. Ensure that the label taken sensor's cable is secured in the two cable anchors under the left side cover.

   Place the cover into position and reverse the cover removal process.



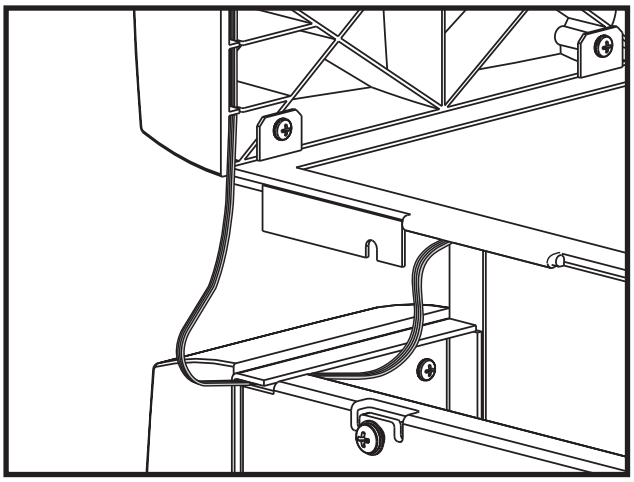
2. Attach label taken sensor cable to the main PCBA at JP26.

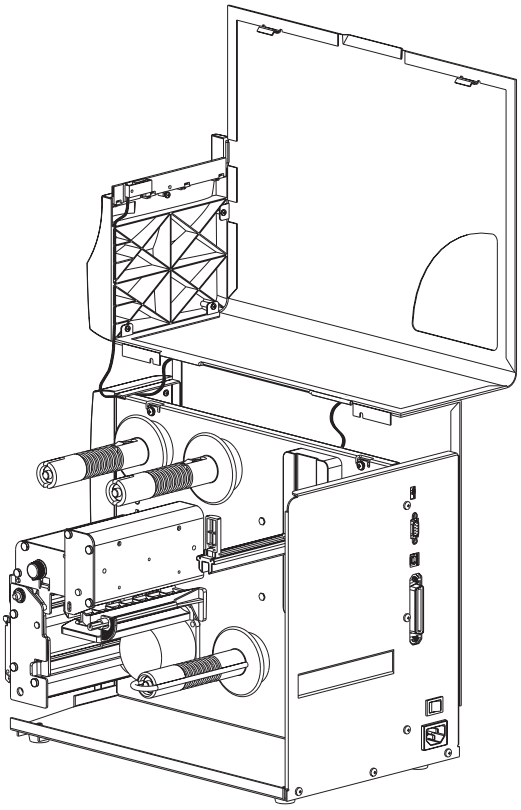




3. Slide the cable into the seam between the front and center panels. Remove as much excess loop in the cable towards the rear of the printer and main PCBA.

4. Put the cover on the printer. Verify that the cable has not been pinched between the cover and printer.

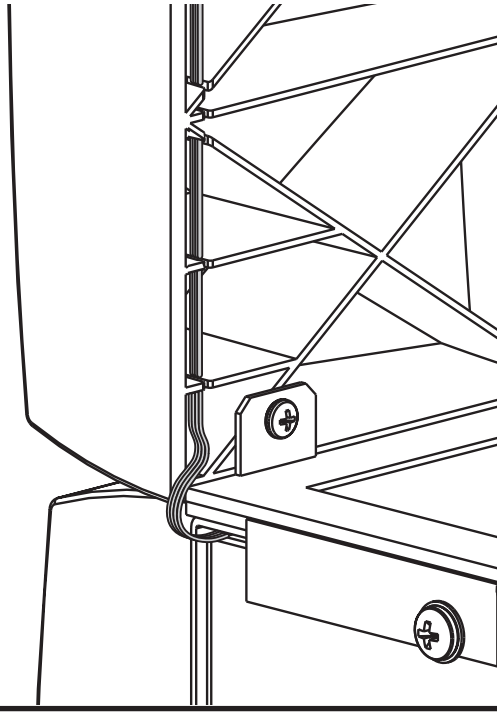




5. Push the excess cable back into the seam between the front and center panel.

6. Re-attach the cover to the printer with the washers and screws.

7. Verify the cable has a minimal service loop (1/4 to ½ inch) that does not pull tight when the cover is in the full open position.



Protect against static discharge when handling the printer with the cover removed. Your work area must be static-safe and should include a properly grounded conductive cushioned mat to hold the printer and a conductive wrist strap for yourself.

Preparations

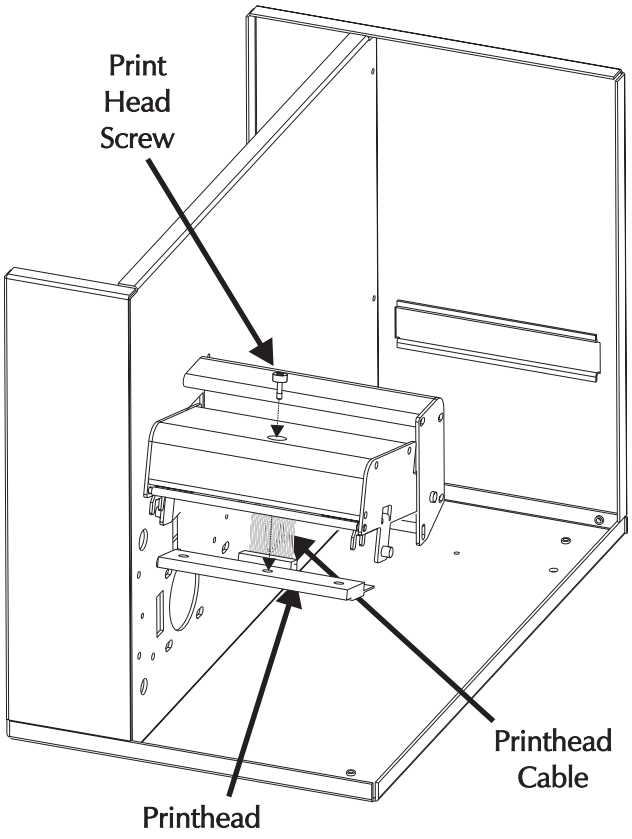
Before starting the procedure, open the printer, then remove any media from the printer.

Tools:

3mm Allen wrench hex key or driver

Removal

1. Open the printhead assembly.
2. Lower the printhead by loosening the mounting Allen head screw which is accessed through a hole in the top of the printhead assembly.
3. Detach the printhead (ribbon) cable.



Installation

1. Connect the replacement printhead. Pin 1 on the printhead and cable is toward the center panel of the printer.
2. Align the printhead with the two bracket alignment pins.
3. Secure printhead to printhead bracket by tightening the printhead bracket screw. *Recommended - Tighten the Allen head screw to 4.7 ±1 in. lb.*
4. Close and open the printhead and recheck that the printhead cable still secure and connected to the printhead and moves freely without binding..
5. Clean the printhead after completing installation, see Cleaning and Maintenance.
6. Reset the printhead odometer with the Printer Information service utility program, see procedure 980428-157.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Tools:

#2 Philips screw driver

Power Supply Access

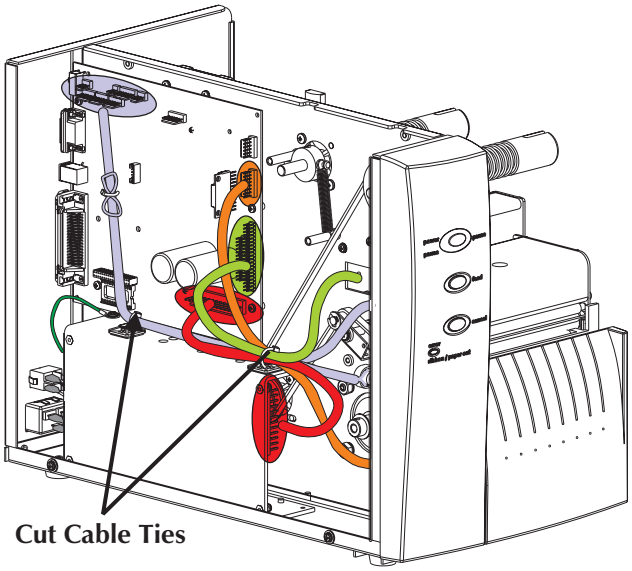
1. Cut the two (2) cable ties securing the cable harness to the top of the power supply. **Caution - Do not cut the cables.**

2. Remove the screw securing the grounding lug and wire to the top of the power supply.

3. With the printer tilted towards the right side, hold the power supply while removing the two (2) screws (and washers) that secure it to bottom panel.

3. Swing the power supply out and down next to the printer to gain access to the AC voltage setting jumpers, power supply cables or make a DC voltage adjustment.

   Caution - The connectors on the cable harness may come loose or inadvertently disconnected if special care is not taken.



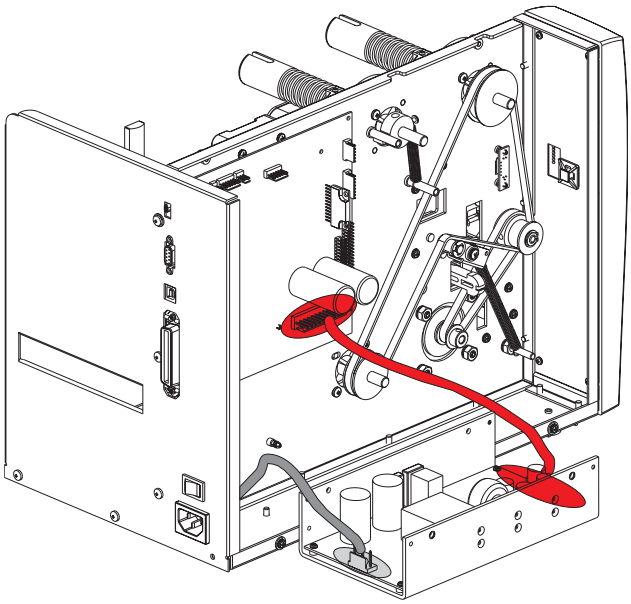
Power Supply Removal

4. Disconnect the AC and DC power cable from the power supply.

Installation

1. Reverse the power supply removal and access processes.
   -- If replacing the power supply, the AC voltage should be set prior to installing the power supply, see procedure 980428-104.
   -- The DC voltage setting should be verified prior to attaching the power supply to the printer, see procedure 980428-105.

   Important - Re-attach the ground wire to the power supply in the following order: 1) Star Washer 2) Ground wire and lug (from toroid) 3) Star Washer 4) Nut. Tighten the nut to 7.5 ±2 in. Lb. torque



Installation

1. Reverse the power supply removal and access processes.

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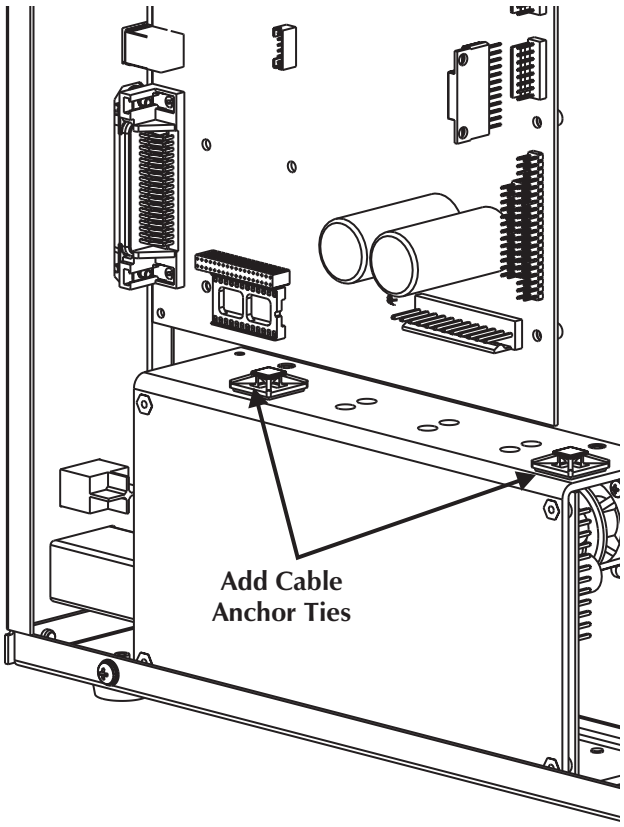
2. Add two (2) cable tie anchors to the front and rear of the power supply (as shown).

3. Re-tie the main PCBA harness. Use the "Securing the Harness" procedure, 980428-009.



Set AC Voltage

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

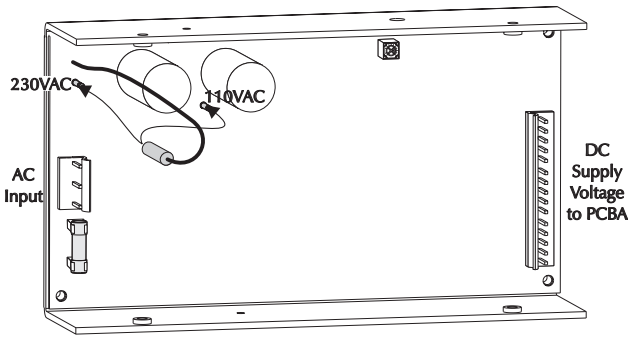
The power supply must be detached from the bottom panel for access. (980428-103)

Set Voltage

1. Disconnect the power supply from the cable harness and printer base.

2. Move the voltage selection jumper wire to the appropriate voltage pin. Verify the correct voltage is marked next to the jumpers pin.

3. With a marking pen, print the new voltage setting on the voltage label on outside of the power supply case.



Re-assemble Printer

1. Remount the power supply using the screws and washers.

2. **Important** - Re-attach the ground wire to the power supply in the following order: 1) Star Washer 2) Ground wire and lug (from toroid) 3) Star Washer 4) Screw. Tighten the nut to 7.5 ±2 in. Lb. torque

3. Re-anchor the cable harness to the top of the power supply.

4. Verify that the cables and ties have not become loose or damaged. Verify that the cable tie points have not moved, allowing the cables to touch belts or gears.

5. Re-attach the exterior cover.

Fuse Warning
If the power supply's fuse has blown, the power supply most likely has a critical component failure. The majority of fuse failures require a power supply replacement.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

The power supply must be detached from the bottom panel for access. (980428-103)

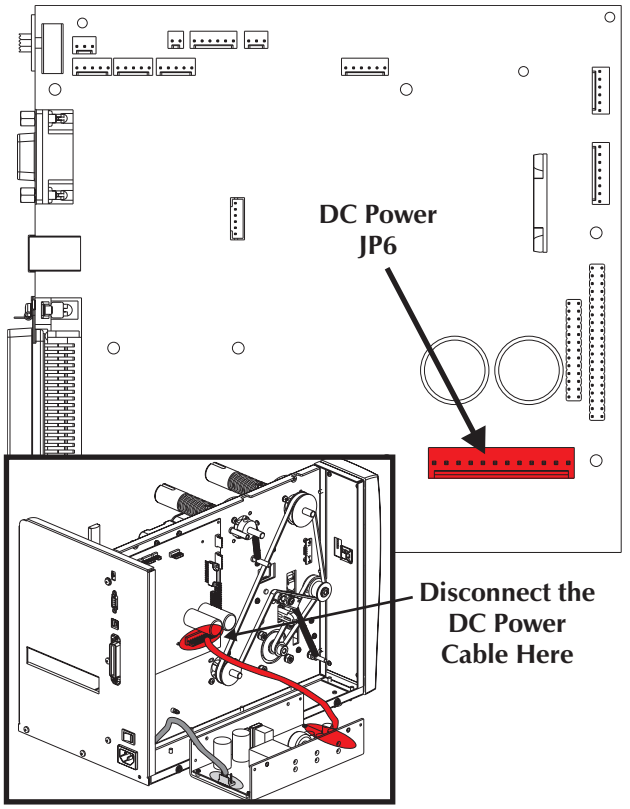
Shock Hazard
Always turn off the printer before removing the exterior cover.

The printer must be turned on after the cover is removed to perform this procedure. See the following procedure.

DC Voltage Verification

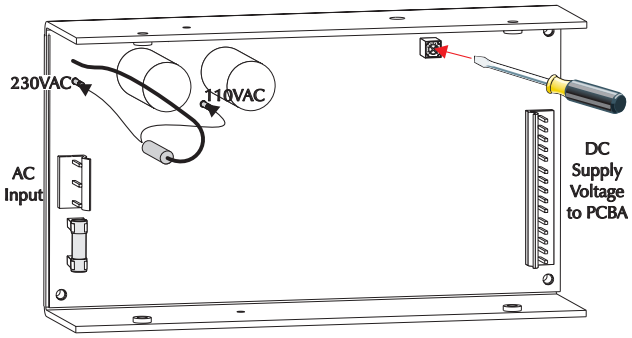
1. Disconnect the DC power cable (JP6) from main PCBA.
2. Insert the positive voltage probe of a digital voltmeter into one of the cable's connector plug's socket pins with a red wire connected to it. Insert the other probe into a socket pin that has a black wire attached to it.
3. Turn the printer on. Measure the voltage. The voltage should be 25 ±2 VDC. **Turn off the power.**

   If the voltage is out of range, the voltage needs to be adjusted.
4. Re-attach the DC power cable to the main PCBA.



DC Voltage adjustment

1. Un-mount the power supply as if you were to replacing it, see procedure 980428-103. Leave the AC power connector plugged in.
2. Connect the voltmeter to the DC power cable as described above.
3. Turn the power on and adjust the voltage to 25 VDC. **Turn the power off.**
4. Re-attach the power supply and re-tie the main PCBA harness. Use the "Securing the Harness" procedure.



Preparations

The exterior cover must be removed prior to proceeding. (Procedure 980428-101)

The power supply must be unscrewed from the printer's bottom plate. (Procedure 980428-103)

Power Switch Removal

1. Push the retaining tabs into the side of the power switch or AC power filter module and slide it out of the back panel.

Power Switch Installation

1. Disconnect the old switch's wires, one at a time, and reconnect them to the new switch in the same position. Note the switch's orientation, **1** (one) to the outside and **0** (zero) towards the center panel.

2. Push the new switch into the back panel until flush with the back panel. Wiggle it from the inside to very that it has locked in place.

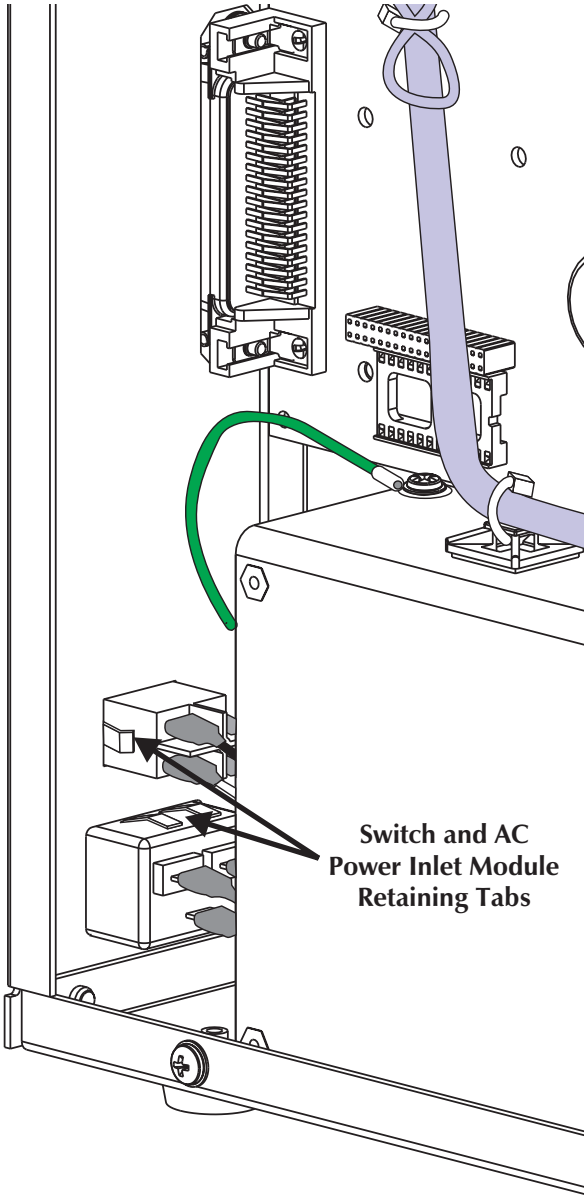
AC Power Inlet Removal

1. Push the retaining tabs into the side of the AC power inlet module and slide the module out of the back panel.

AC Module Installation

1. Disconnect the old module's wires, one at a time, and reconnect them to the new switch in the same position. Note the module's orientation, ground towards the bottom plate.

2. Push the new module into the back panel until flush with the back panel. Wiggle it from the inside to very that it has locked in place.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

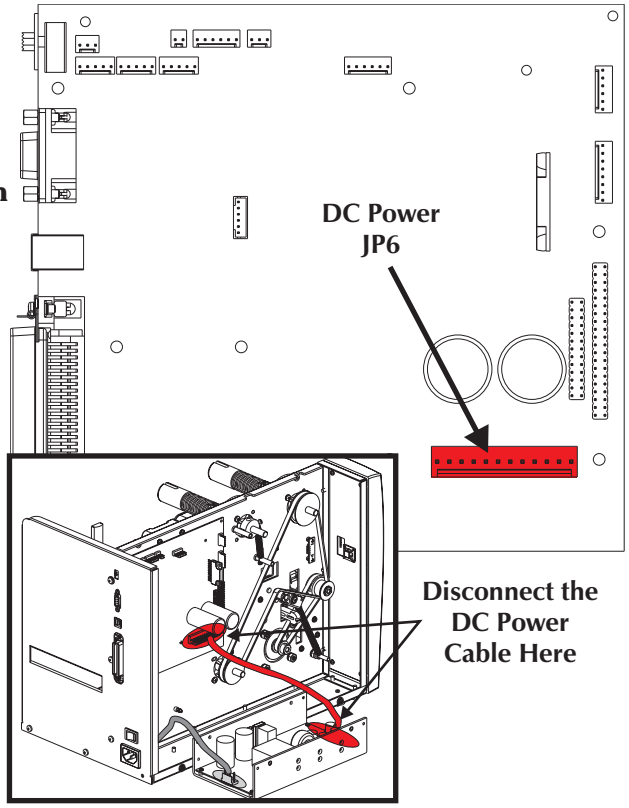
The power supply must be detached from the bottom panel for access. (980428-103)

Note the main cable harness routing and cable tie positions. (980428-009)

DC Voltage Verification

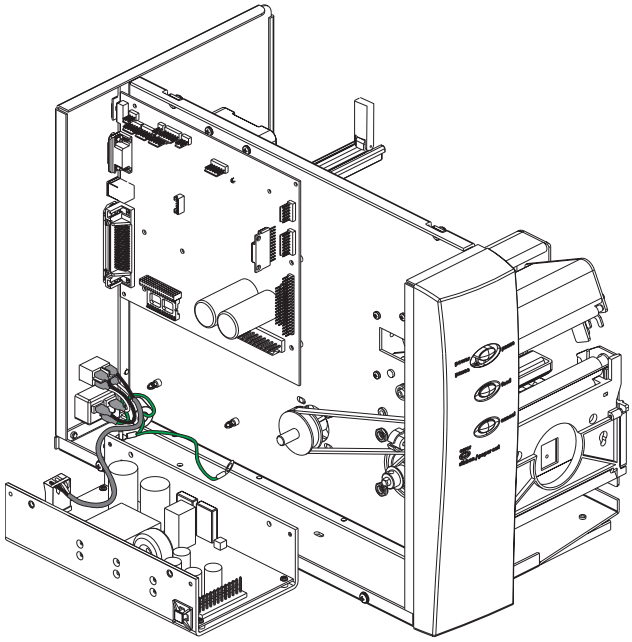
Removal

1. Cut the two (2) tie-wraps securing the main cable harness to the power supply. **Caution - Do not cut the cables!**
2. Disconnect the ground wire from the top of the power supply.
3. Remove the two screws holding the power supply to the base plate. Set the power supply next to the printer.
4. Disconnect the power cable (JP6) from main PCBA.
5. Disconnect the power cable from the power supply.



Installation

1. Connect the power cable (JP6) to the main PCBA.
2. Connect the power cable to the power supply.
3. Re-attach the power supply to the base.
4. **Important** - Re-attach the ground wire to the power supply in the following order: 1) Star Washer 2) Ground wire and lug (from toroid) 3) Star Washer 4) Screw. Tighten the nut to 7.5 ±2 in. Lb. torque
5. Re-tie the main PCBA harness. Use the "Securing the Harness" procedure, 980428-009.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

For best results, the detach the power supply from the printer bottom. (Procedure 980428-103)

Tools:

5/16 in. Nut Driver, #1 Phillips Screwdriver

Removal & Replacement

1. After the power supply is laying on its side next to the printer, disconnect the AC power cable's connector from the power supply.

2. With a nut driver, disconnect the green ground wire from the printer's bottom panel.

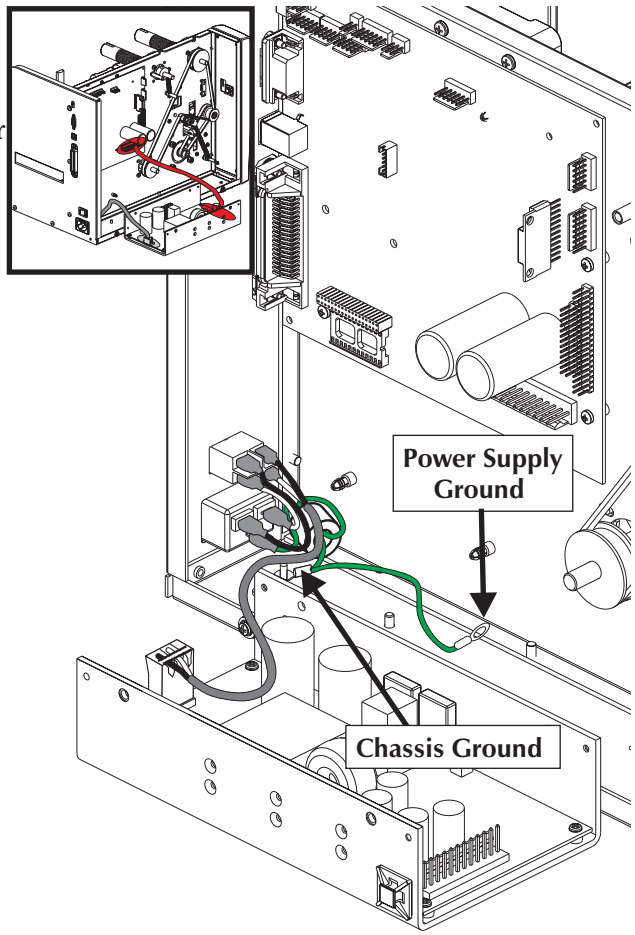
3. Remove and immediately replace the individual AC cable components from the AC Power Cable spares kit.

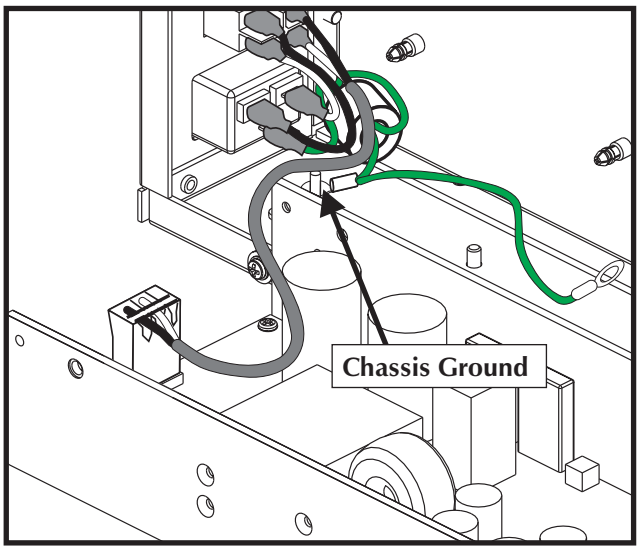
4. **Important** - Attach the chassis ground to the bottom panel of the printer in the following order: 1) Star Washer 2) Ground wire and lug (½ inch from toroid) 3) Star Washer 4) Nut.
   Tighten the nut to 7.5 ±2 in. Lb. torque.

5. Re-attach the AC power cable to the power supply.

6. Re-attach the power supply. See procedure 980428-009, note the power supply ground and cable tie points.

   Important - Re-attach the ground wire to the power supply in the following order: 1) Star Washer 2) Ground wire and lug (from toroid) 3) Star Washer 4) Screw. Tighten the nut to 7.5 ±2 in. Lb. torque

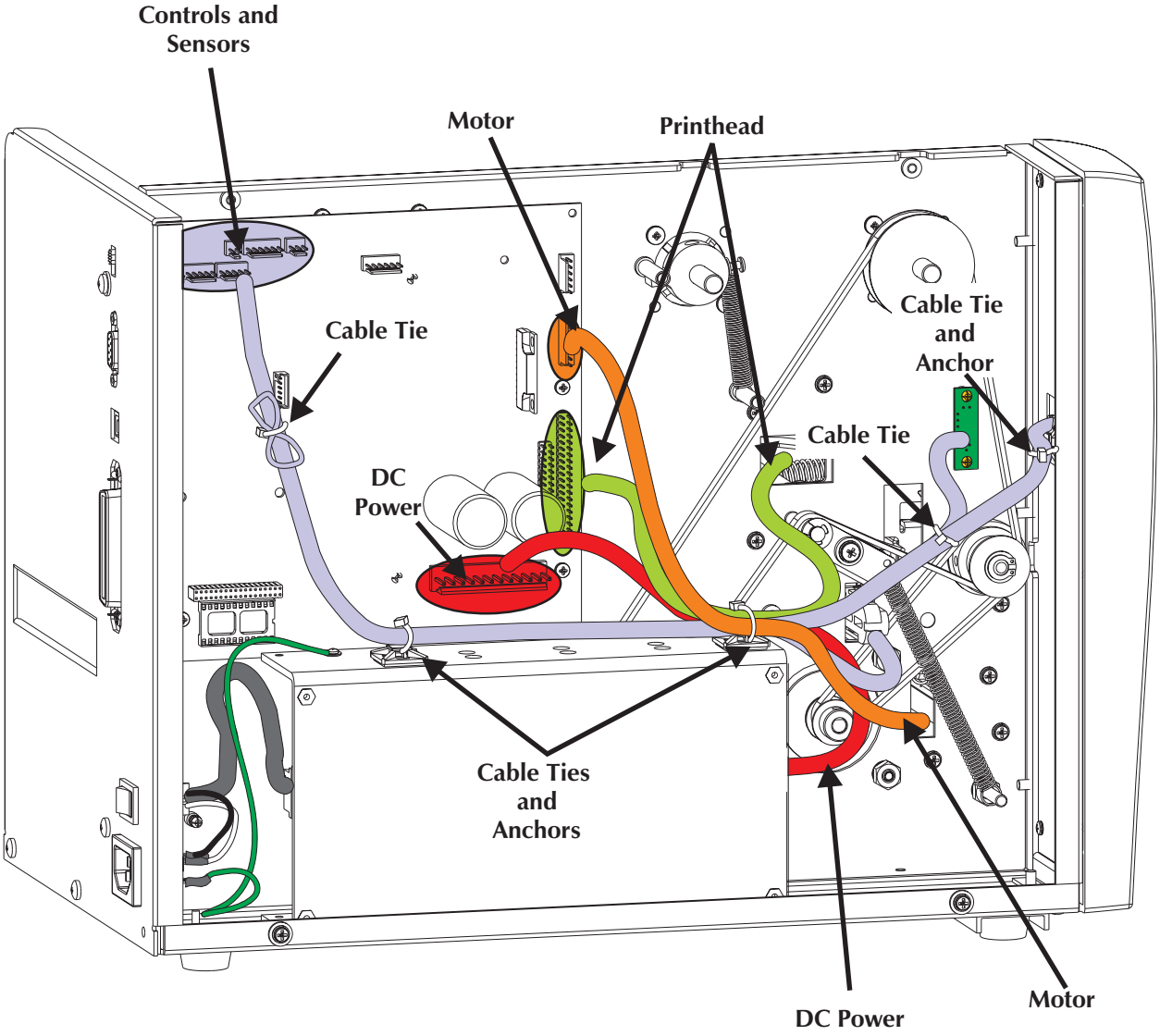




Securing the Wire Harness

The printer was designed to meet or exceed all regulatory agency (CE, FCC, UL, CSA, etc.) safety and electro-magnetic requirements. The positioning and anchoring of the cables and connectors are critical to meet these requirements.

The following diagrams the physical location of the printer's primary cable groups and cable tie points.



Verify all cables are connected prior to proceeding.

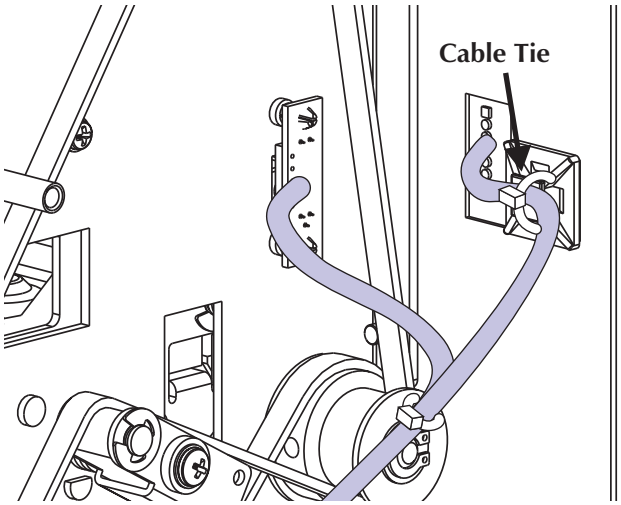
Verify the Main PCBA is pressed into the center panel's circuit board standoffs (and secured with its mounting hardware).

The printer cables and connectors must not interfere (touch) with any moving components (belts, gears or springs).

Placement of cable tie points, tie anchors, and cable tension and slack areas are outlined in the following steps:

Control Panel Tie Point

1. Pull the control panel cable until minimum 1/4" service loop (slack) is present between the cable tie and control panel PCBA. Tighten the tie and cut off the excess.



Front Power Supply Cable Tie Point

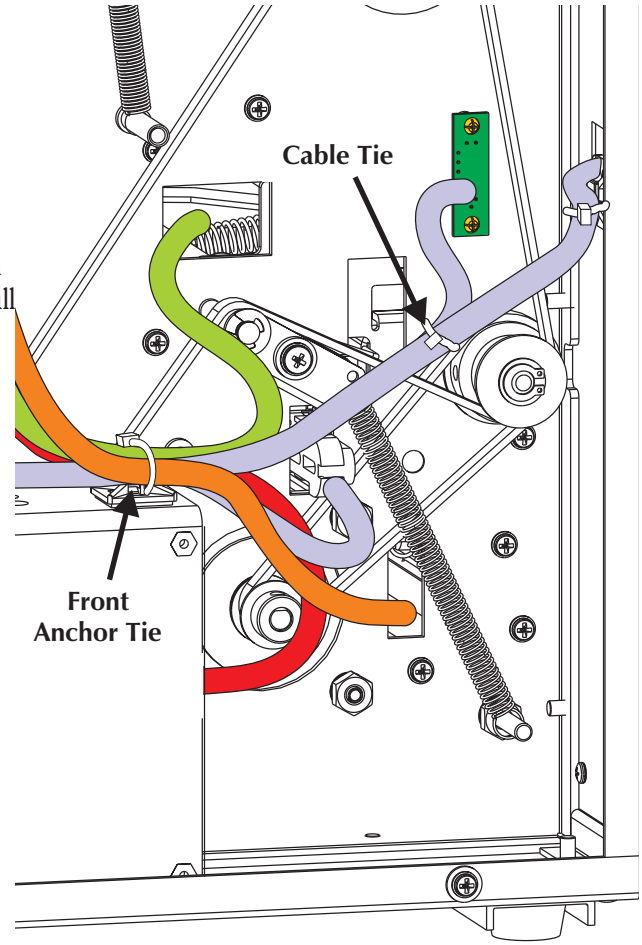
1. Loosely tie the DC power, control panel, head-up, label sensor, and motor cables with a cable tie through the front anchor tie on top of the power supply.

2. Push the label sensor slide to the maximum distance into the user side of the printer. Pull the sensor cables through the power supply anchor tie towards the main PCBA, taught but not strained. Tighten the tie.

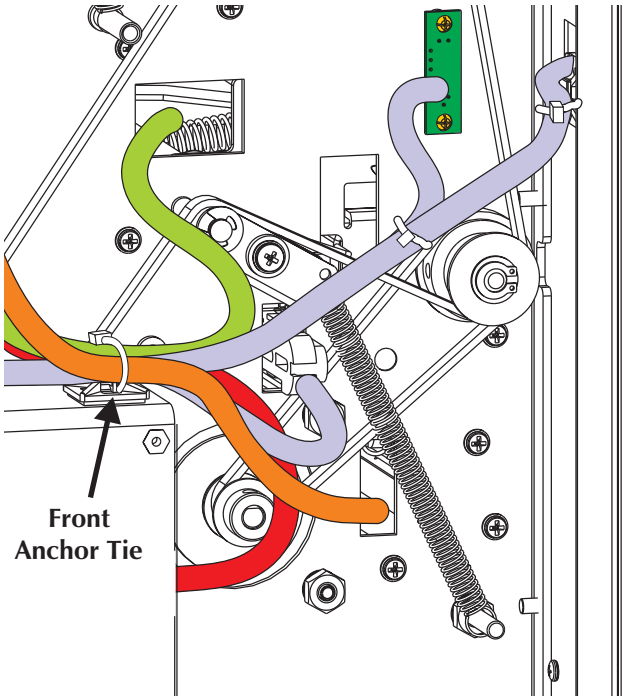
3. Pull the control panel cable through the power supply anchor tie towards the main PCBA, taught but not strained.

4. While holding the head-up cable one-half inch parallel to the center panel of the head-up PCBA, connect the head-up cable to the control panel cable with a cable tie.

   Pull the head-up cable taught to the power supply's front cable anchor tie.



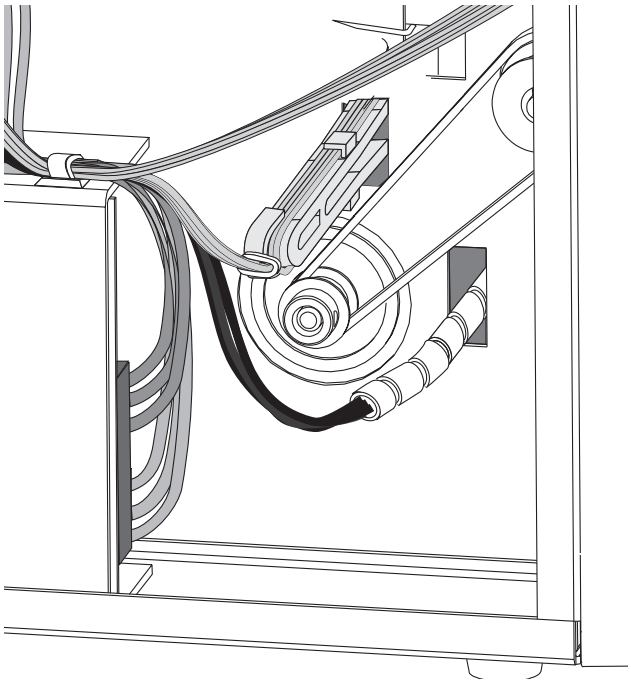
5. Pull the DC power cable through power supply's front cable anchor tie until no more than 2 inches and no less than 1 inch of service loop away from the front side of the power supply.



6. Position the motor cable's spiral wrapping to where one-third of the wrapping is through the center panel towards the motor.

   While holding the spiral wrapped portion motor cable exiting the center panel parallel to the printer base and roughly perpendicular to the center panel, pull the motor cable towards the main PCBA through the power supply's front cable anchor tie.

7. Tighten the cable tie on the power supply's front cable anchor and remove (cut) the excess off.

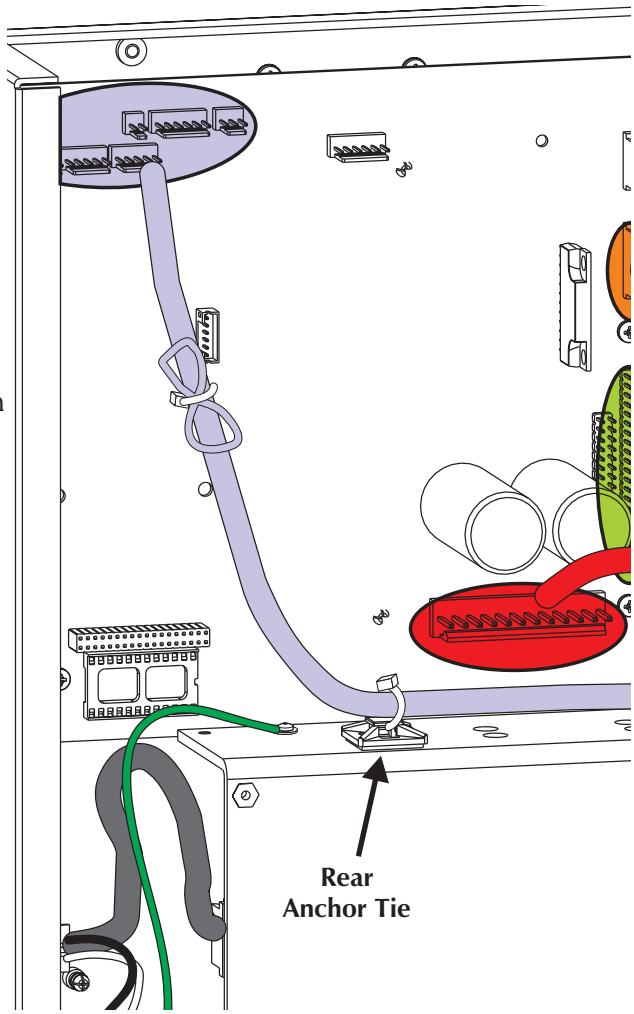


Rear Power Supply Cable Tie Point

1. Pull the control panel, label sensor and head-up cables exiting the front cable anchor tie to the rear cable anchor and tie them loosely in place. Arrange the bundle neatly. Pull the cable to the rear, taught through the rear tie and tighten it tight. Remove (cut) the excess tie.

2. Fold the excess cable from the sensors and controls into the bundle. Tie the bundle with a cable tie approximately one inch from their connectors on the main board. Finish tightening the tie wrap.

3. Verify there is approximately 1/8 inch service loop on all the cables going from the rear anchor tie to the connectors on the main PCBA.



Final Check

1. Verify the printer cables and connectors are not interfering (touching) with any moving components (belts, gears or springs).

2. Verify all ties are snug.

Preparations

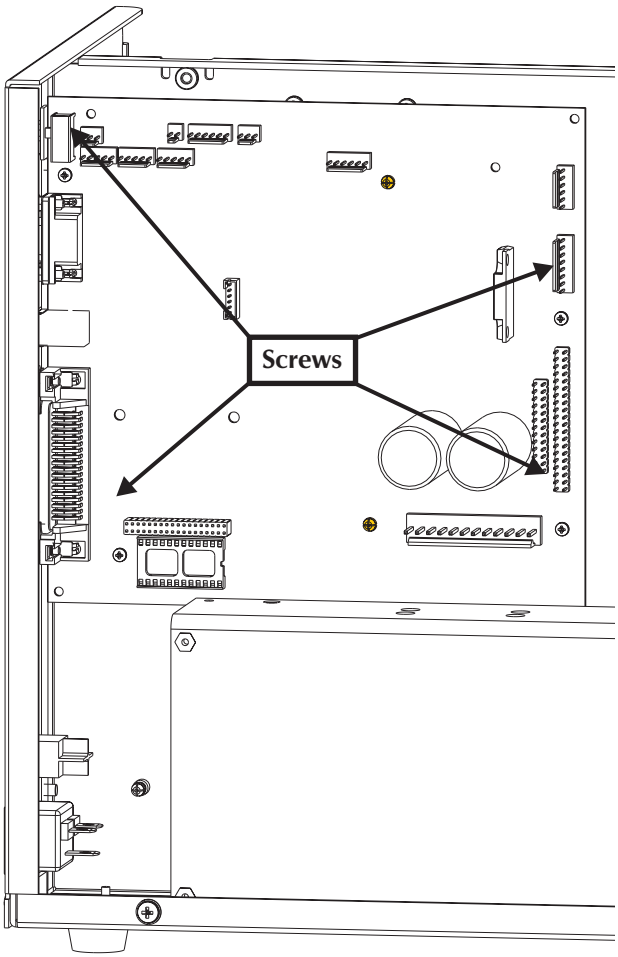
The exterior cover must be removed prior to proceeding. (980428-101)

If needed, load the Printer Information Software Utility into printer test PC. (980428-157)

Tools:

#1 Philips screw driver

Removal



1. Use the Print Information software utility to extract the printer's serial number and head life prior to PCBA removal, if possible.
2. Disconnect all the external cables and power cords from the printer.
3. Disconnect the motor, DC power, and the printhead cables from the main PCBA.
4. Remove the four (4) mounting screws holding the main PCBA to the center panel.
5. With the sensor and control cables still attached to the main PCBA, gently lift the main PCBA off the stand-offs.
6. Set the old main PCBA gently aside, next to the power supply. Have care not to disconnect the sensor and control cables.

Installation

1. Mount the main PCBA on the stand-offs and secure the main PCBA to the center panel with the four (4) mounting screws.
2. Swing the old main PCBA next to new PCBA with both boards' sensor and control connectors and cables accessible.
3. One at a time, disconnect the sensor and control cables from the old board and plug them immediately into to the matching location on the new PCBA. Remove the RTC from the old PCBA (if present) and place it on the on the new PCBA. See RTC Installation, 980428-112.
4. Connect the motor, DC power, and the printhead cables to the new main PCBA.
5. Power up the printer and load media to verify operation with the AutoSense routine.
6. Use the Printer Information utility to set the previous PCBA's serial number into the new PCBA and head life reporting parameters (inches or millimeters) to track printer and head life.

Preparations

Before starting the procedure, open the printer, then remove any media from the printer.

The exterior cover must be removed prior to proceeding. (980428-101)

Tools:

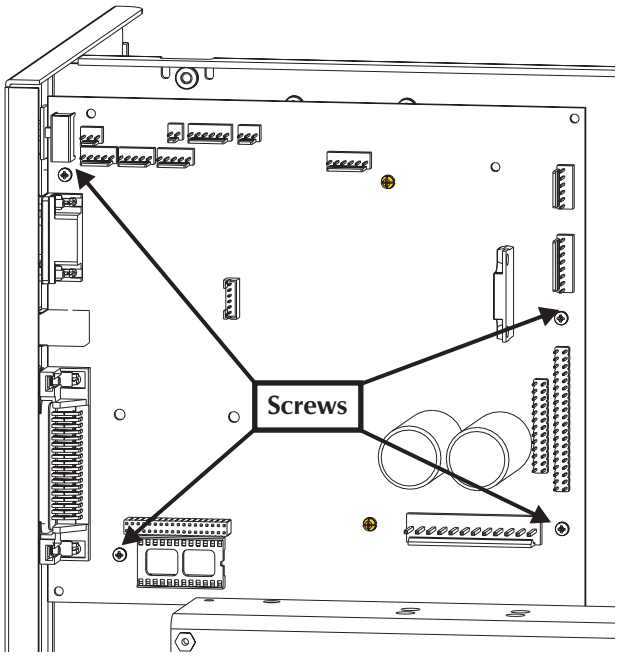
#1 & #2 Philips screwdrivers

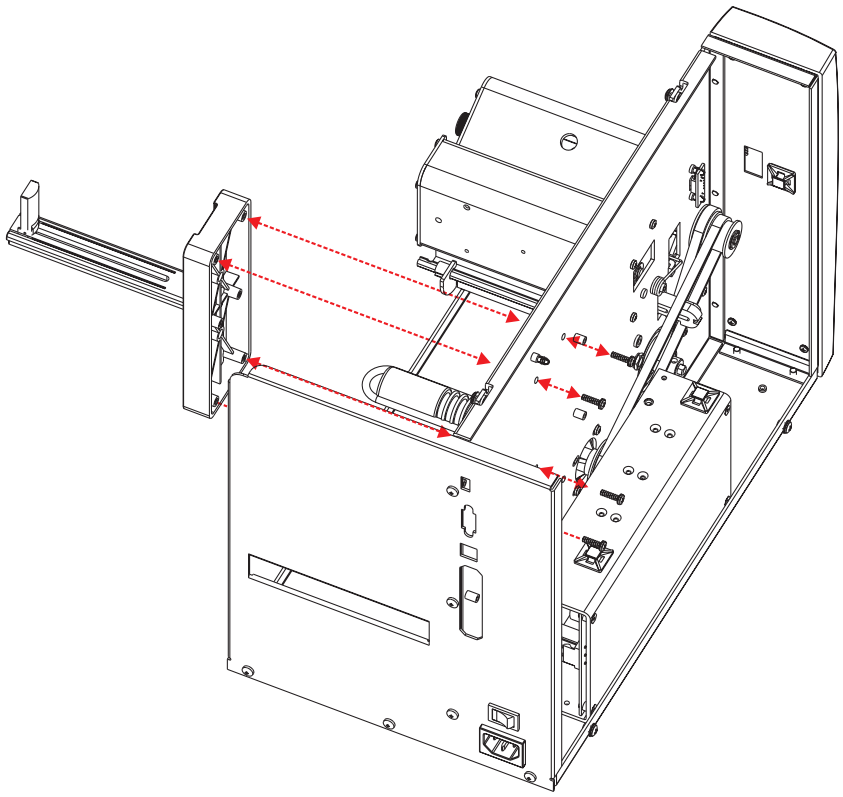
Removal & Replacement

1. Remove the four (4) screws securing the Main PCBA to the chassis. Pull the main PCBA off the stand-offs. Leave the cables attached and gently lay the PCBA against the printer and work surface.

2. Remove the four (4) mounting screws securing the Label Roll Support assembly to the center panel.

3. Install the new Label Roll Support assembly with the four (4) screws and re-attach the Main PCBA with it's screws.





Preparations

The exterior cover must be removed prior to proceeding. (Procedure 980428-101)

Tools:

No additional tools needed

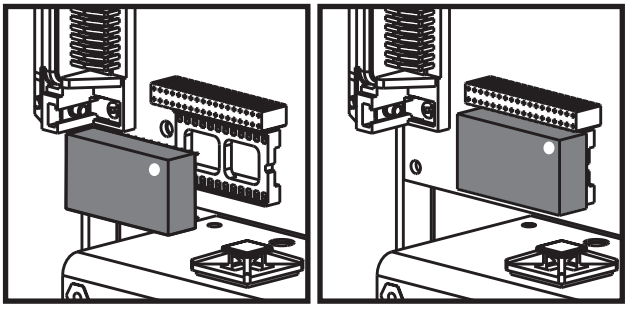
Installation

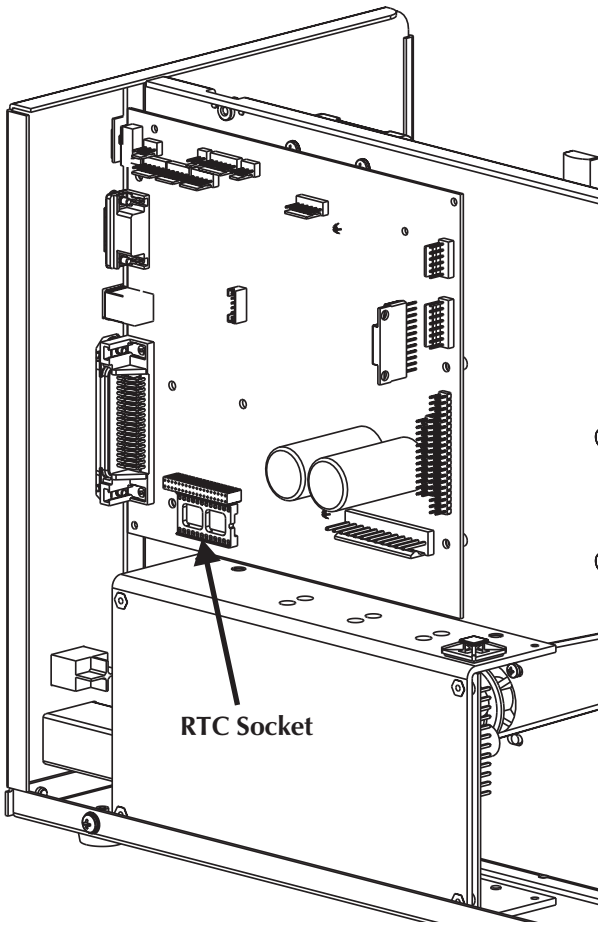
RTC - Real Time Clock Option

1. Add the real time clock option chip into the socket at location U2. Match the notch on the socket and the dot RTC module to properly orient the module.

   The real time clock option stores the time of day and date. The chip's battery has a life of up to ten years.

   See the EPL2 Programmer's Manual for information about setting the real time clock, and formatting the layout of the date and time.





Re-assembling the Printer

1. Reattach the printer cover.

2. Attach the power cord and interface cable.

3. Power up the printer and run the AutoSense routine to verify that the RTC option has recognized by the printer.

4. Set the clock and print display format using the EPL2 commands **TD**, **TS** and **TT**.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

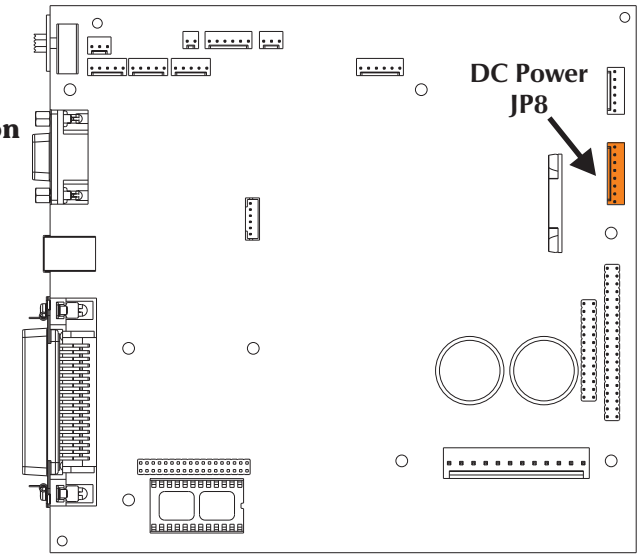
Tools:

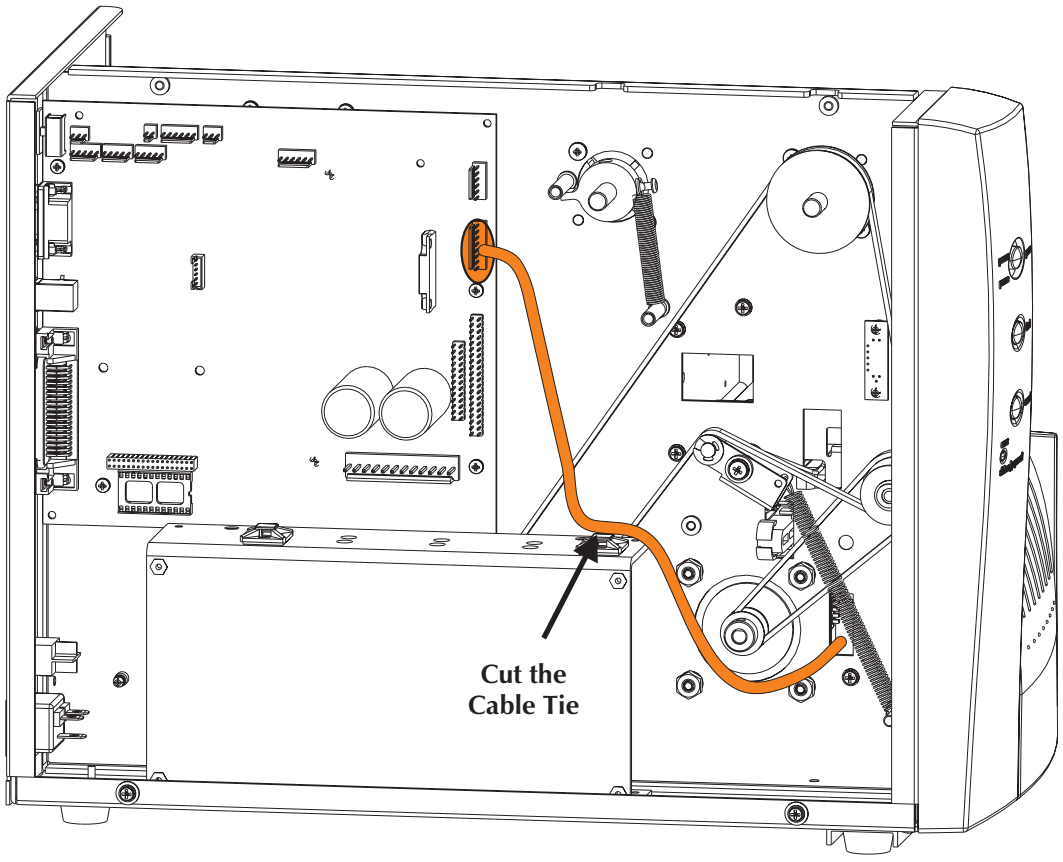
Large Flat Blade Screwdriver

Removal

1. Cut the front tie-wrap securing the main cable harness to the power supply. **Caution - Do not cut the cables!**

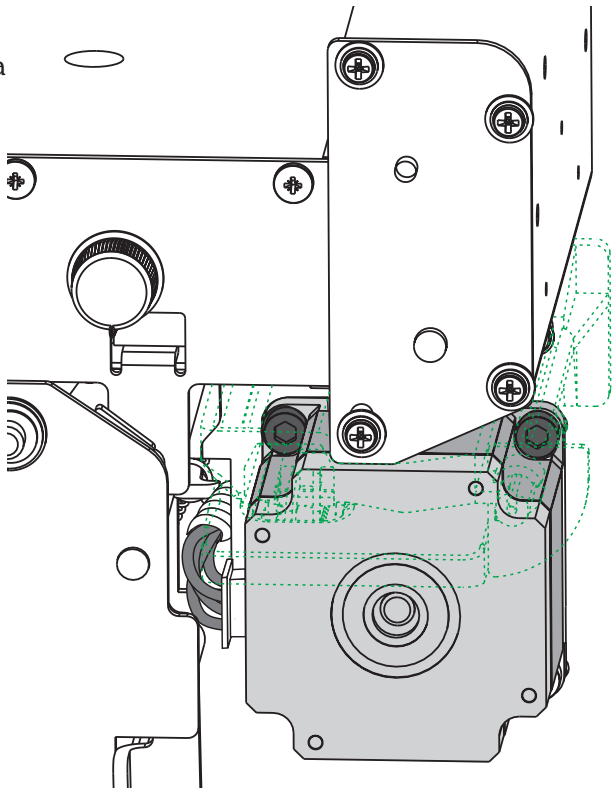
2. Disconnect the power cable (JP6) from main PCBA.





3. Disconnect the motor cable from the motor. The motor connector can be pried off with a large bladed screw driver. Pull the cable out of the users side through the center panel's wall and out the service access side

4. Remove the spiral wrap from the old cable.



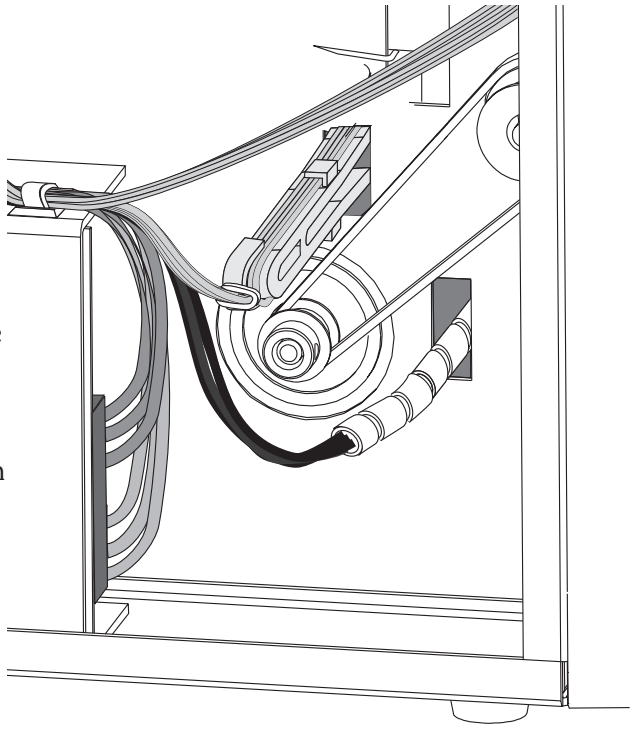
Installation

1. Add the spiral wrap to the new motor cable.

2. Pass the cable through the center panel's motor access hole and plug it into the motor.

3. Slide the spiral wrapping until it is positioned with two-third on the service side of the center panel wall.

4. Re-attach the motor cable with the main cable bundle to the front cable anchor tie on the power supply. Use the "Securing the Harness" procedure, 980428-009, to complete dressing the motor and other cables.



Printhead Cable

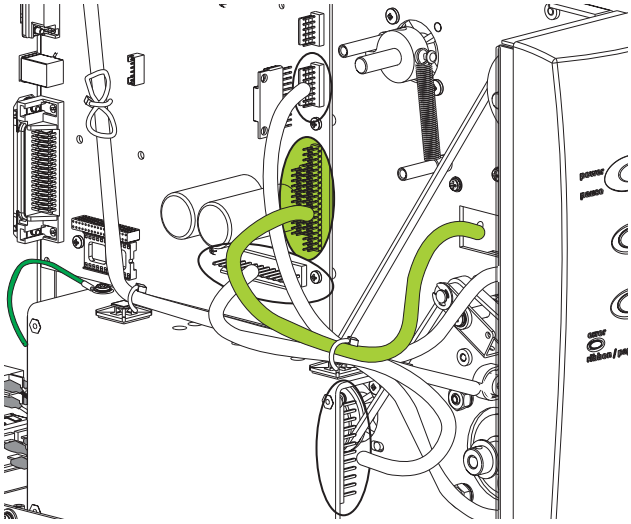
Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

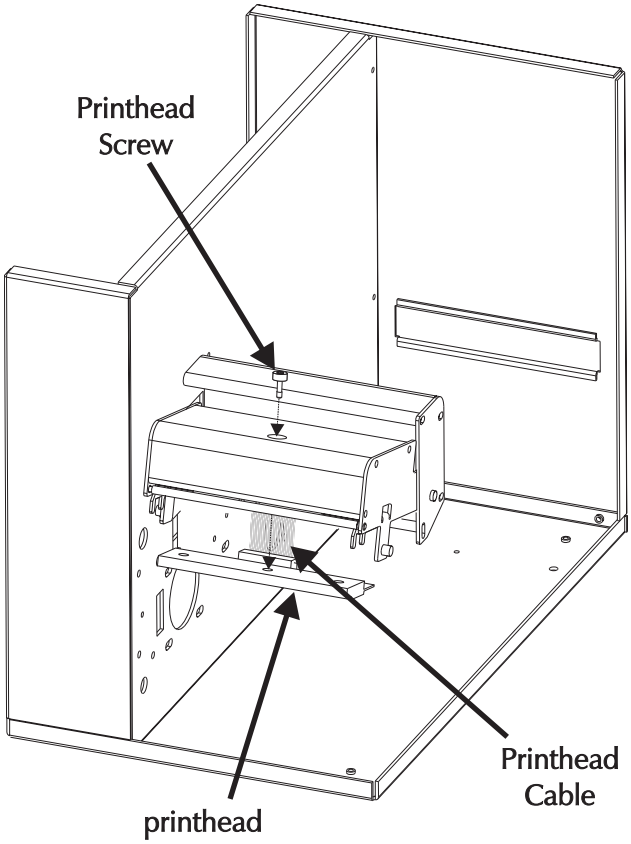
Tools:

3mm Allen wrench hex key or driver

Removal



1. Cut the tie-wrap securing the main cable harness to the power supply. **Caution - Do not cut the cables!**
2. Disconnect the printhead cable (JP21) from main PCBA.
3. Open the printhead assembly.
4. Lower the printhead by loosening the mounting Allen head screw which is accessed through a hole in the top of the printhead assembly.
5. Detach the printhead (ribbon) cable. Set the loose printhead on a clean, soft and static safe surface (mat).
6. Pull the cable out through the center panel.
7. Remove the cable's spiral wrap.



Installation

1. Place the spiral wrap on the new cable.
2. Connect the cable to the JP21 on the main PCBA. Note pin 1 on the connector and cable. Slide the spiral wrap 2" from the printhead end of the cable.
3. Route the cable through the center panel. Lower the printhead for easier access.

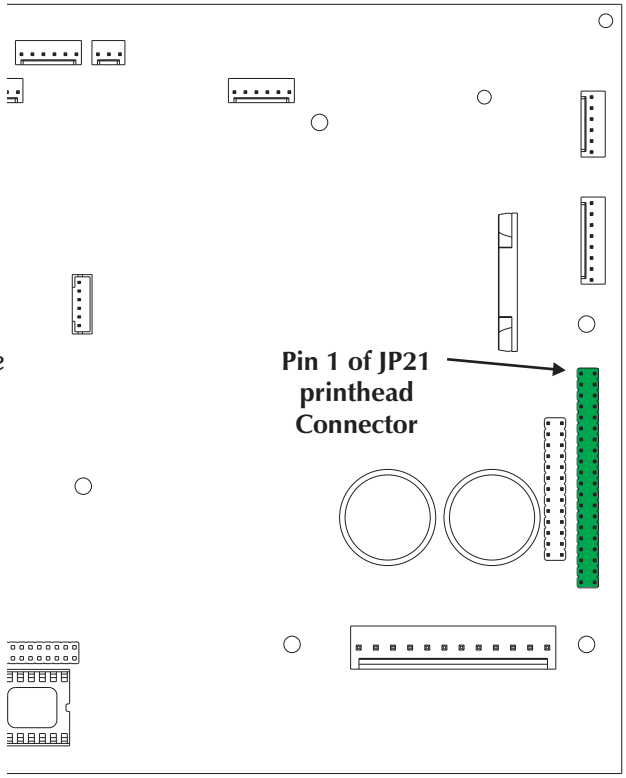
5. Align the printhead with the two bracket alignment pins.

6. Secure printhead to printhead bracket by tightening the printhead bracket Allen head screw. Tighten the screw to 4.7 ±1 in. lb.

7. Close and open the printhead and recheck that the printhead cable still secure and connected to the printhead. Verify that 1/4 is inside and 3/4 of the spiral wrap is outside of the center panel. This protects the cable from rubbing on the belt and printhead carriage.

8. Re-tie the main PCBA harness. Use the "Securing the Harness" procedure 980428-009.

9. Clean the printhead after completing installation.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

The Label Guide & Sensor assembly is mounted below the printhead assembly. The sensor slide and cables pass through the center panel of the printer chassis and plug into the main PCBA.

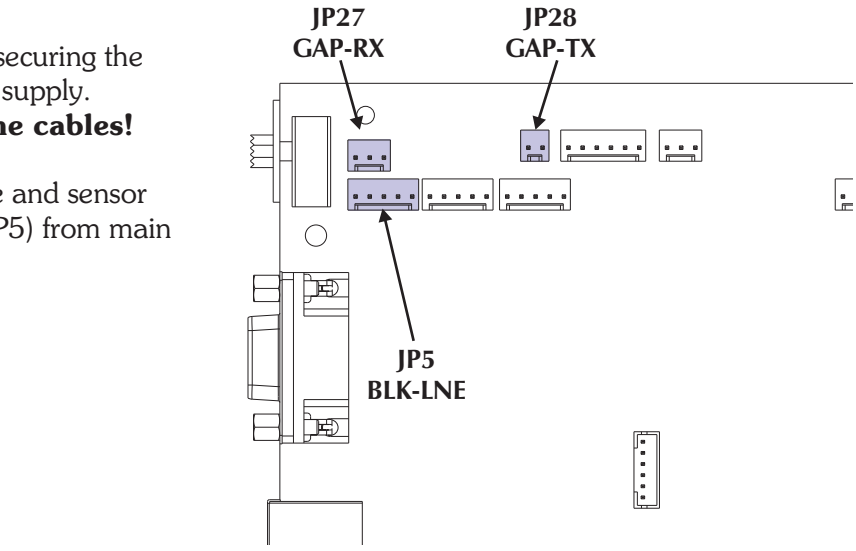
Tools:

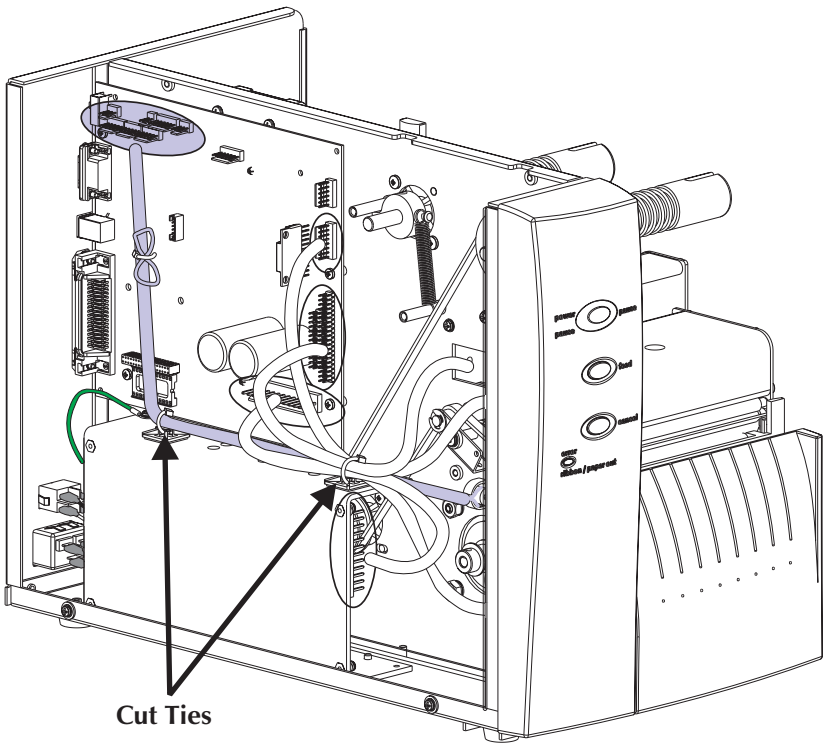
#2 Philips screw driver

Removal

1. Cut the two (2) tie-wraps securing the sensor cable to the power supply. **Caution - Do not cut the cables!**

2. Disconnect the label guide and sensor cables (JP27, JP28 and JP5) from main PCBA.

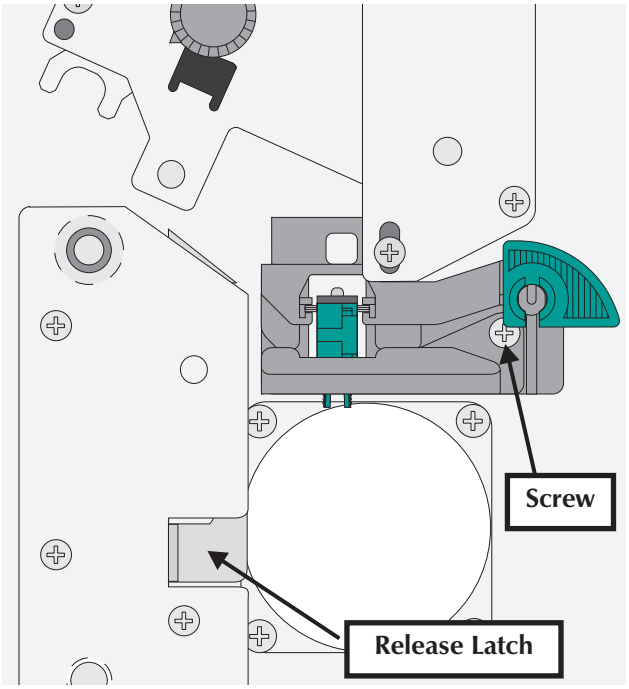




3. From the user's access area (right side of printer), open the printhead with the printhead's release latch.

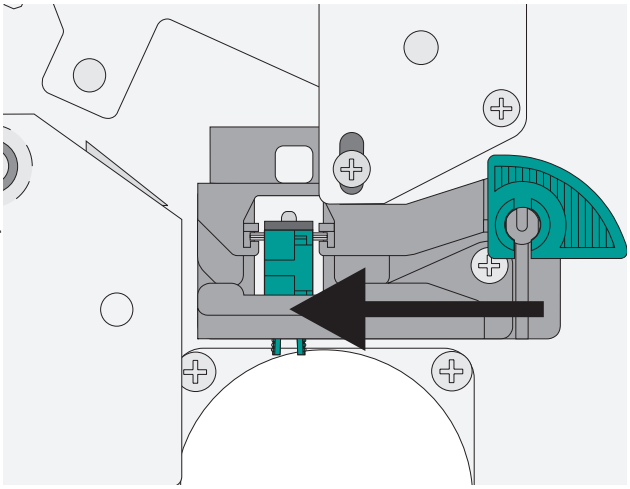
   Adjust the sensor slide to the outside position, away from the center panel of the printer chassis.

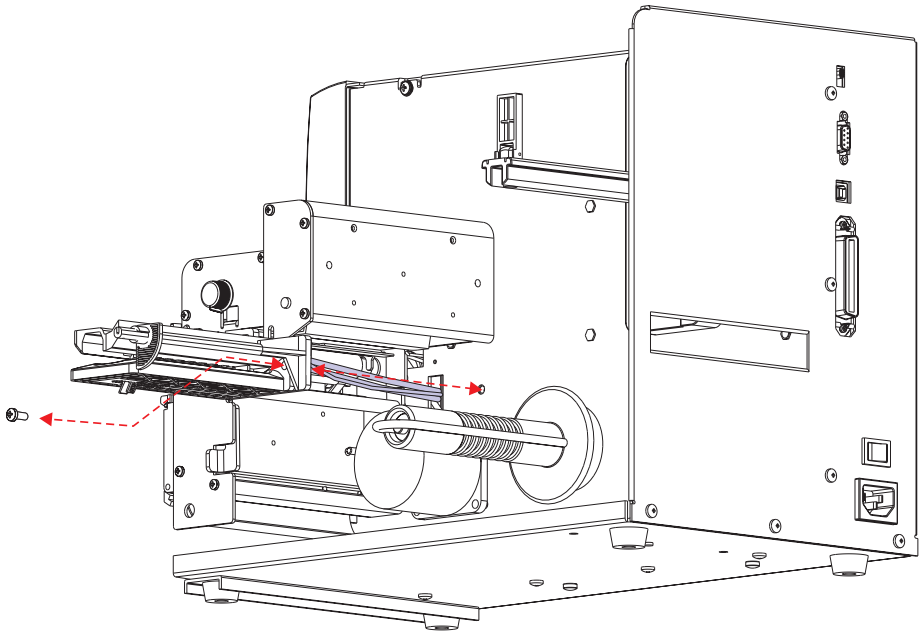
4. Remove the pan head screw securing the label guide and sensor assembly to center panel of the printer chassis (user access side).



5. Slide the label guide and sensor assembly toward the front of the printer, (approx. 1/4" parallel to the center panel) and pull the assembly out away from the center panel when it clears the panel.

   Pull the sensor cables out through the center panel.





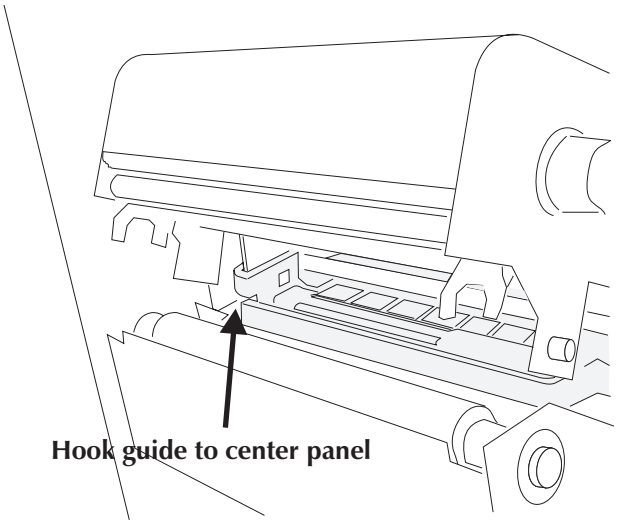
Installation

1. Slide the sensor guide's four (4) cables through the sensor slide's hole.

2. Insert and hook the label guide's tab onto the center panel's cut-out.

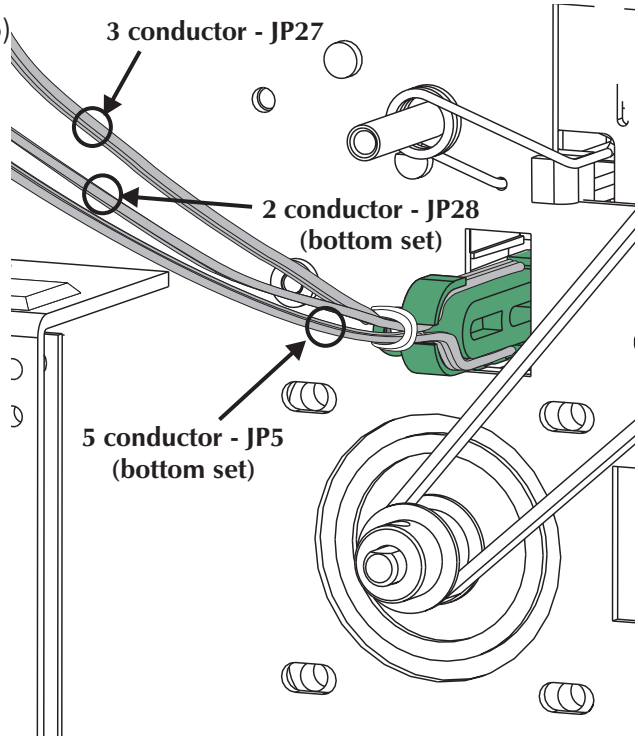
3. Secure the label guide and sensor assembly to the center panel with the pan head screw.

4. Close the printhead.



5. Re-connect the cables (JP27, JP28 and JP5) to the Main PCBA. The five (5) conductor cable exiting the bottom of the sensor slide gets connected to JP5.

6. Re-tie the main PCBA harness. Use the 'Securing the Wire Harness' procedure, 980428-109, to properly re-attach the cables.



Preparations

The exterior cover must be removed prior to proceeding. (Procedure 980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

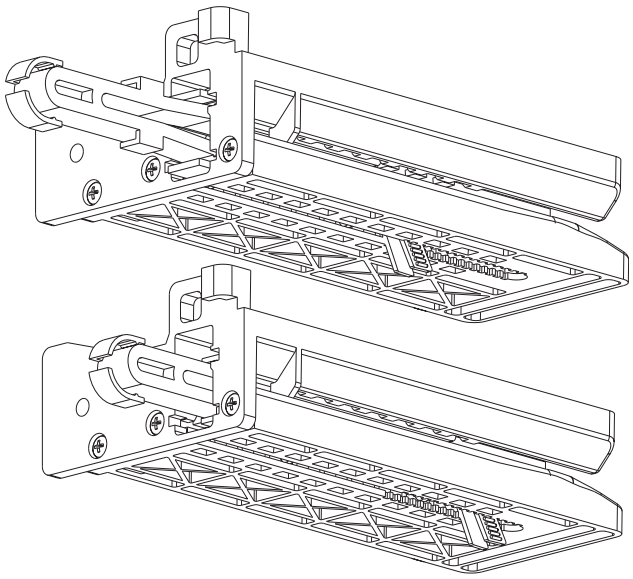
Remove the Label Sensor and Guide Assembly from the printer. (980428-117)

Tools:

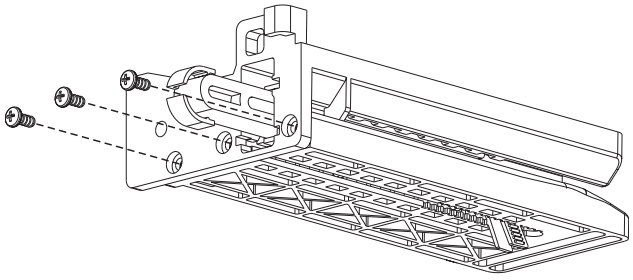
#2 Philips screw driver

Removal

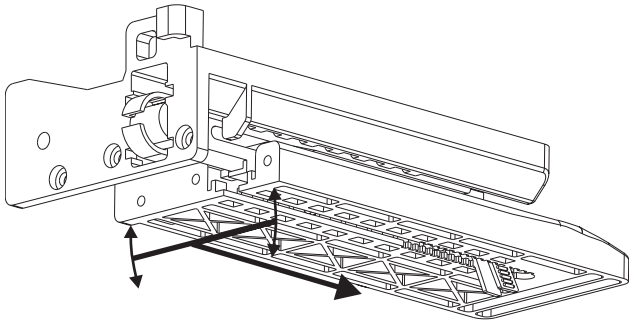
1. Slide the sensor adjustment slide into the sensor housing.



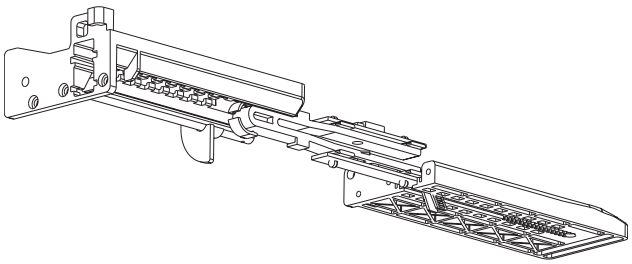
2. Remove the three (3) screws attaching the lower housing to the upper.



3. Gently rock the lower housing while slowly pulling lower housing and slide parallel to the upper housing.



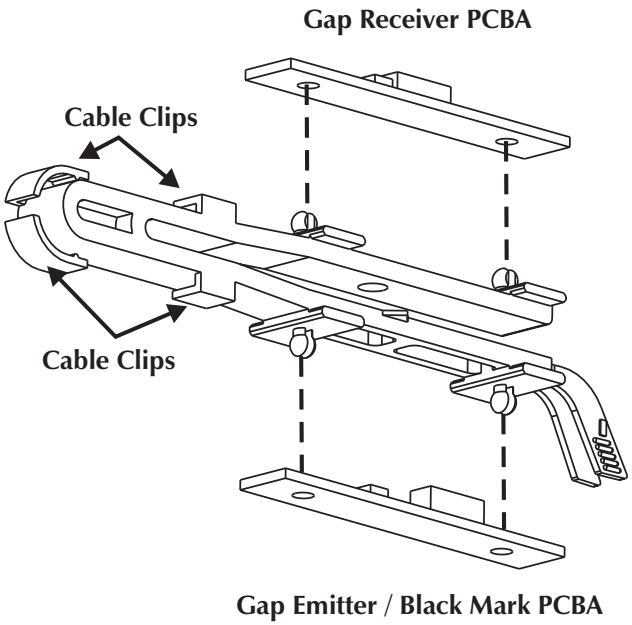
4. Completely slide the lower and upper housings from the slide.



5. Remove the adhesive securing the cables at the end of the slide. **Caution - Do not damage the slide or good cables or good PCBAs.**

6. Slide the appropriate cable out of the cable clips. Note how the cables are attached and routed.

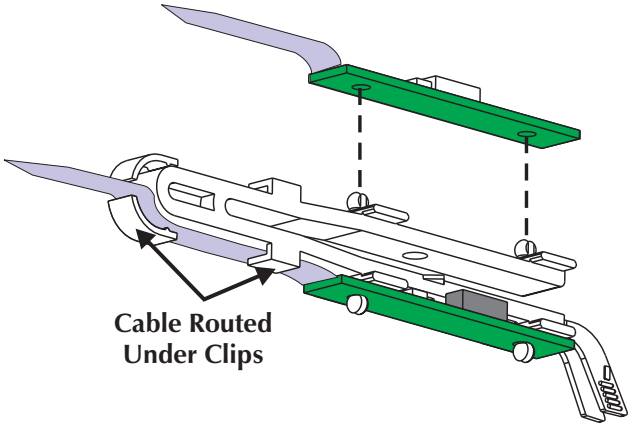
7. While holding the slide to keep it from spreading apart, gently pull the appropriate PCBA from the slide.



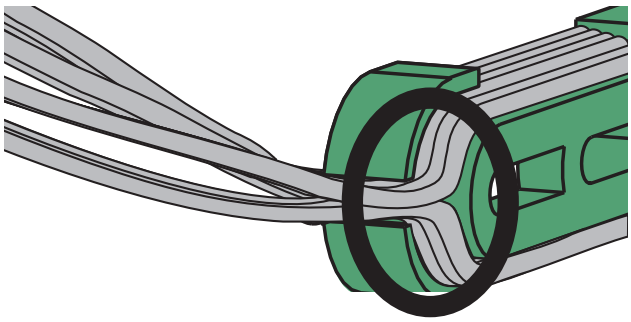
Installation

1. Press the new PCBA onto the slide with the components and cables facing up.

2. Route the cables flat against the slides without twists and under the cable clips.

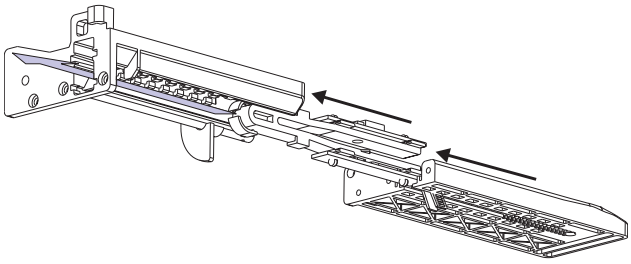


3. Add adhesive (hot melt glue or RTV) to the end of the slide to secure the cables to the slide. Remove excess adhesive immediately. let the adhesive set before continuing.

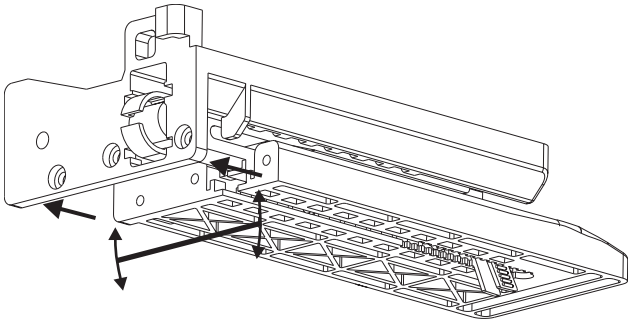


4. Slide the sensor adjustment slide half way into the lower housing.

5. Insert the cables into the slide access in the upper housing.

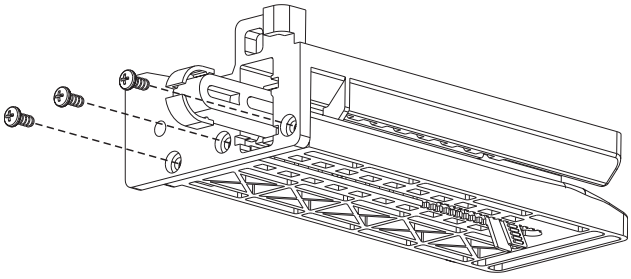


6. Finish sliding the two housings together. Gently rock the lower housing while slowly pushing the lower housing into the upper housing.



7. Re-attach the lower housing to the upper with the three (3) screws.

8. Install the label guide and sensor assembly using the "Label Guide & Sensor" procedure.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

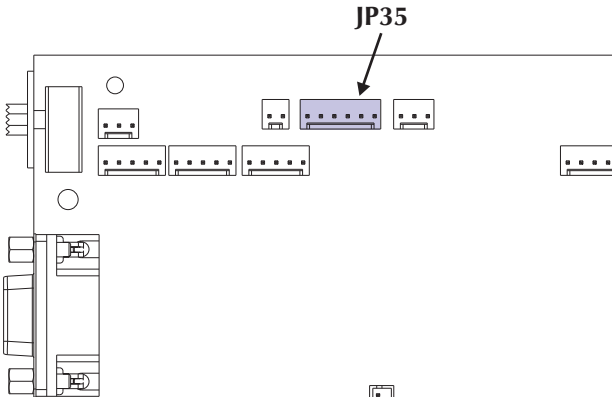
Tools:

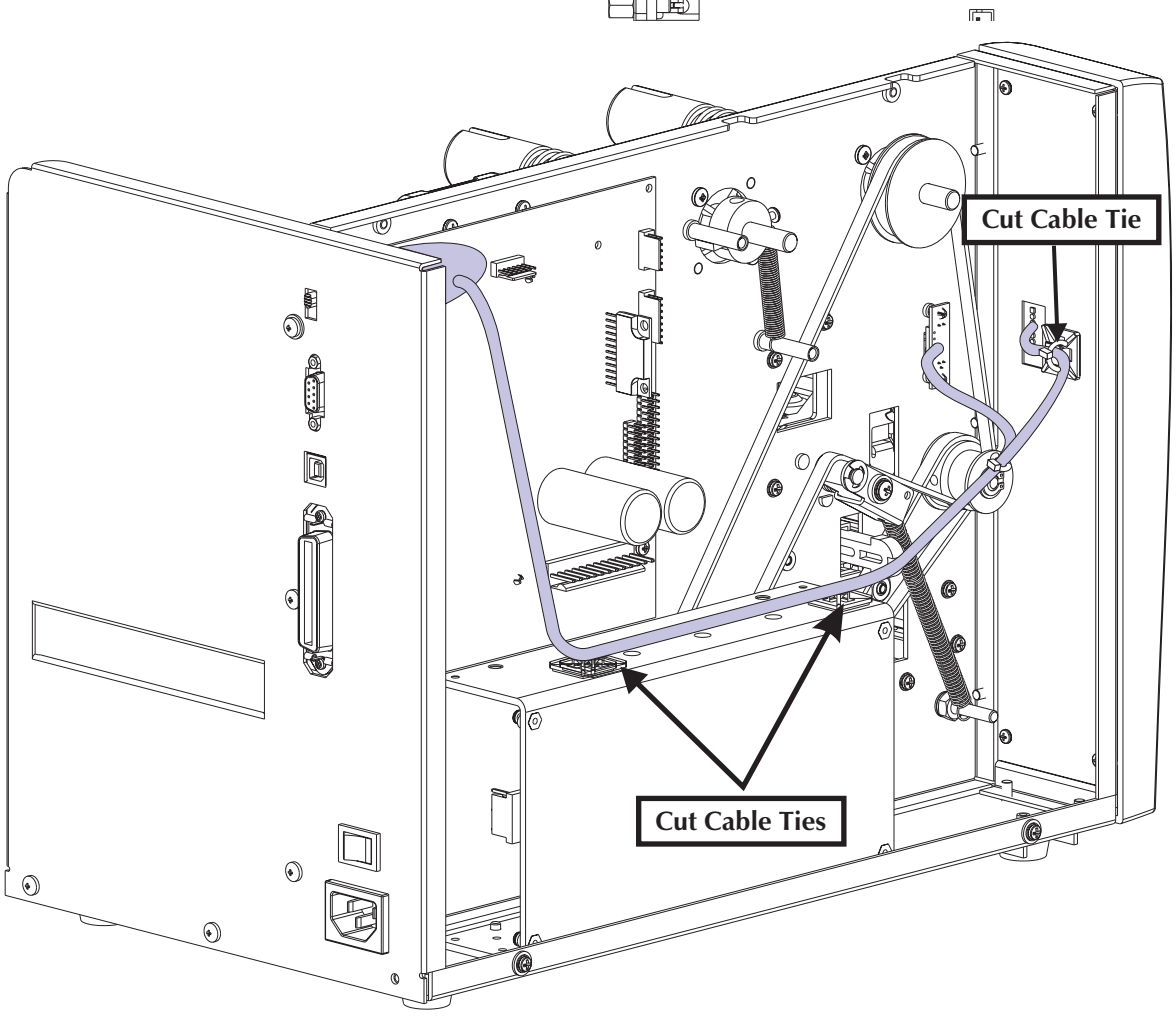
#1 Philips screw driver

Removal

1. Cut the three (3) tie-wraps securing the cables to the power supply and the front panel.
   Caution - Do not cut the cables!

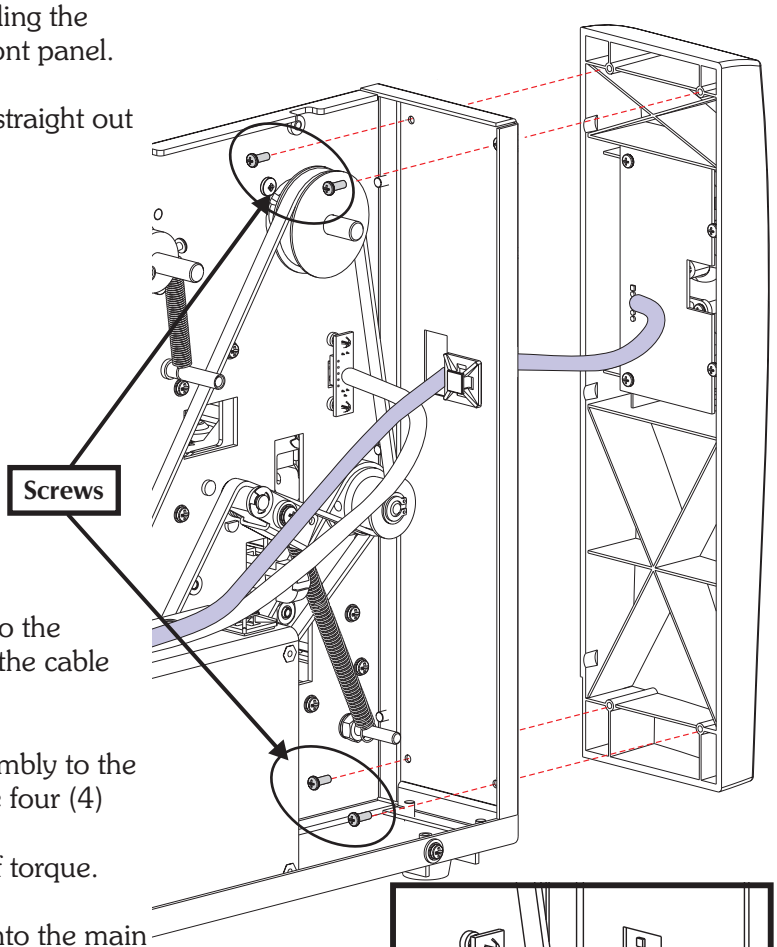
2. Disconnect the control panel cable (JP35) from main PCBA.





4. Remove the four (4) screws holding the control panel assembly to the front panel.

5. Pull the control panel assembly straight out the front panel of the printer.



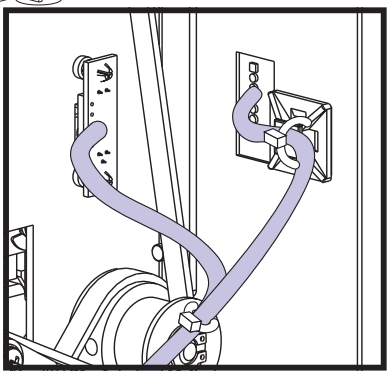
Installation

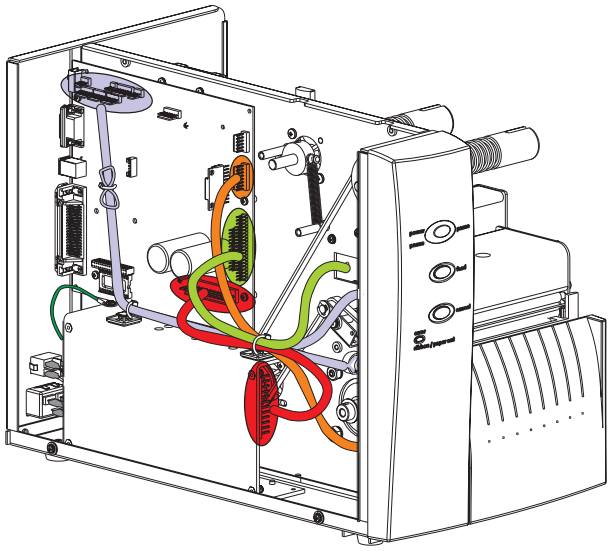
1. Insert the control panel cable into the control panel's access hole. Pull the cable through.

2. Re-attach the control panel assembly to the inside of the front panel with the four (4) retaining screws.
Tighten to 4.7±1inch-pounds of torque.

3. Plug the Control Panel's cable into the main PCBA at connector JP35.

3. Re-attach the control panel's cable to the main cable bundle at the front cable anchor tie on the power supply. Use the "Securing the Harness" procedure, 980428-009, to complete dressing the control panel, head-up and other cables.





Preparations

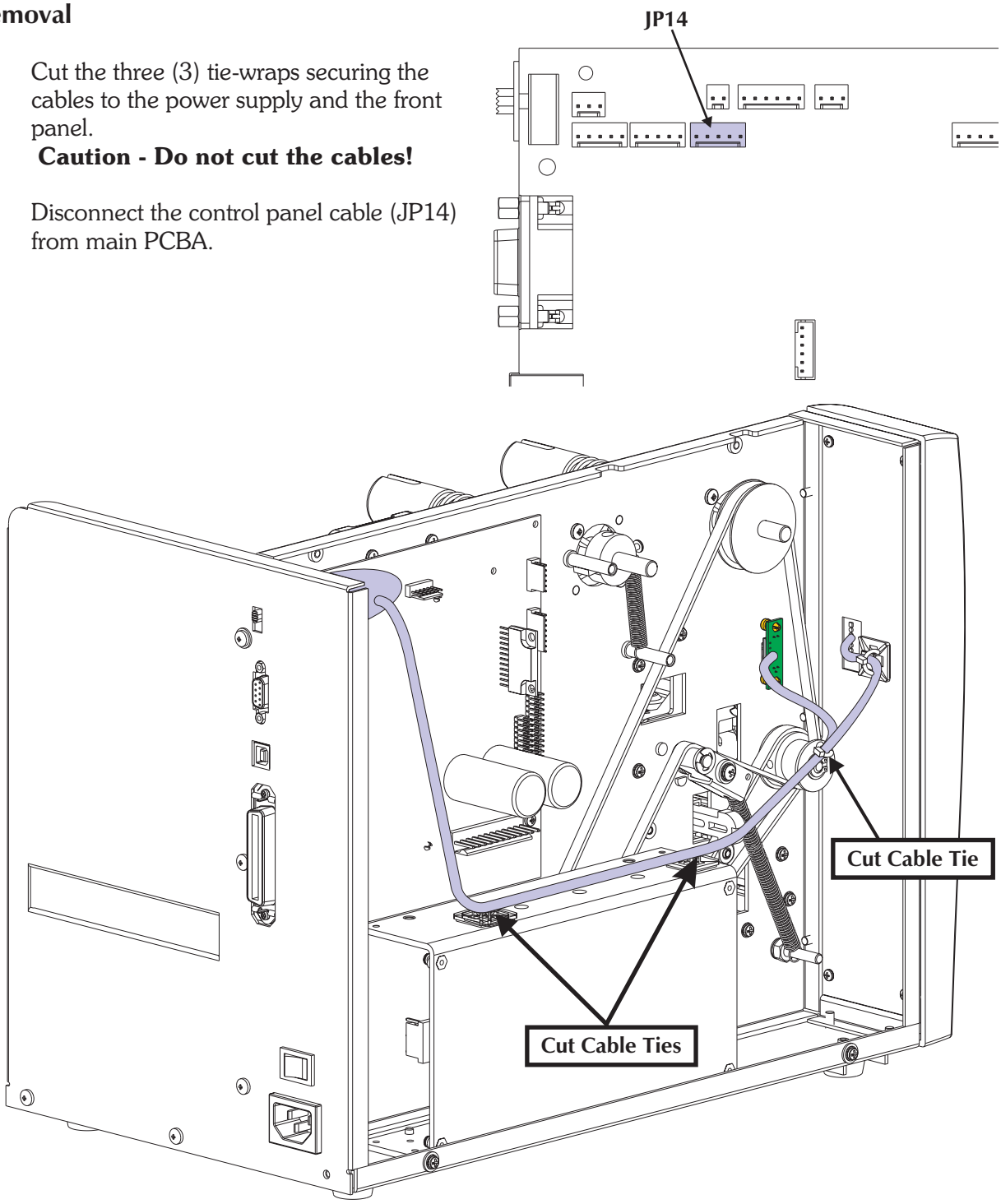
The exterior cover must be removed prior to proceeding. (980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

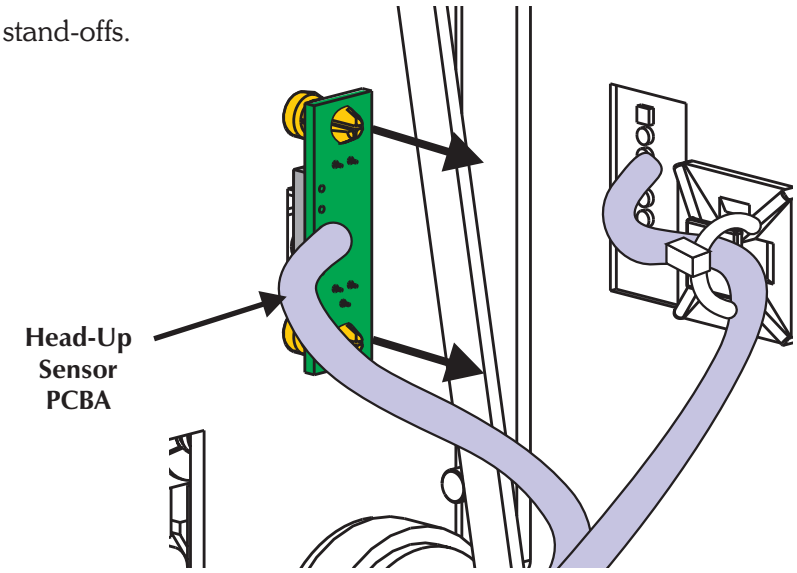
Removal

1. Cut the three (3) tie-wraps securing the cables to the power supply and the front panel.
   Caution - Do not cut the cables!

2. Disconnect the control panel cable (JP14) from main PCBA.



4. Pull the head-up sensor PCBA stand-offs.

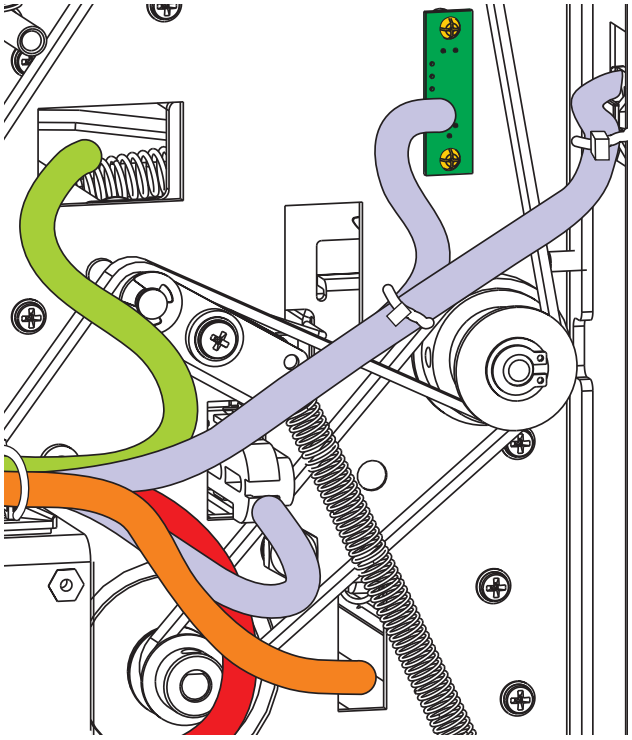


Installation

1. Insert the head-up sensor PCBA onto the stand-offs with the cable facing into the center of the printer.

2. Plug the head-up sensor's cable into the main PCBA at connector JP14.

3. Re-attach the head-up sensor's cable to the main cable bundle at the front cable anchor tie on the power supply. Use the "Securing the Harness" procedure, 980428-009, to complete dressing the control panel, head-up and other cables.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

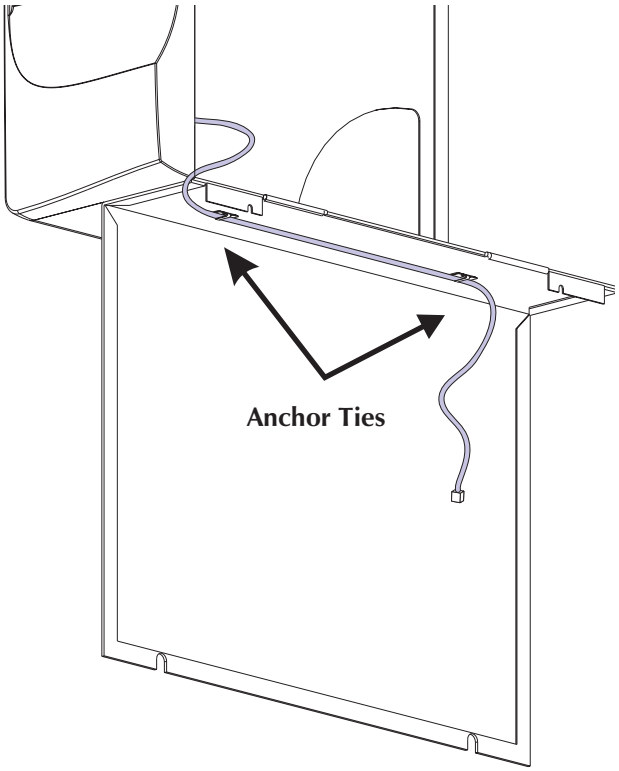
Tools:

No additional tools needed

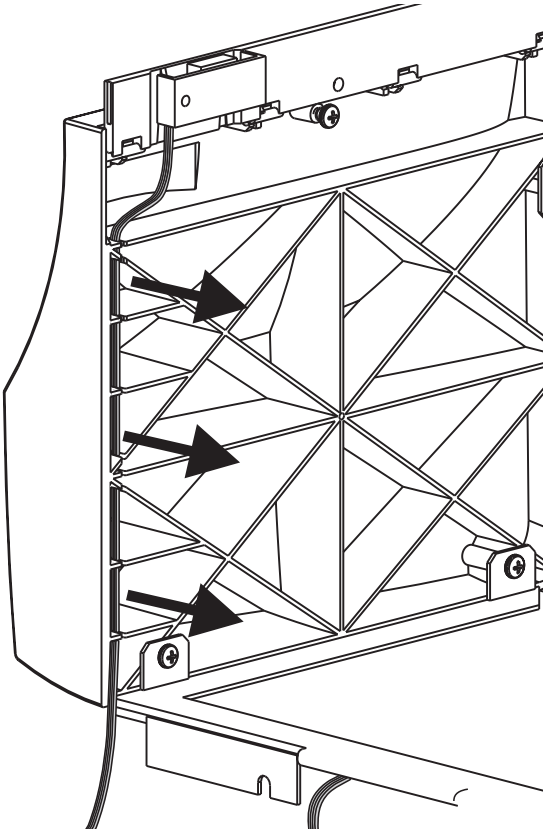
Removal

1. Remove the printers cover.

2. Slip the sensor's cable out of the anchor ties under the left side cover.

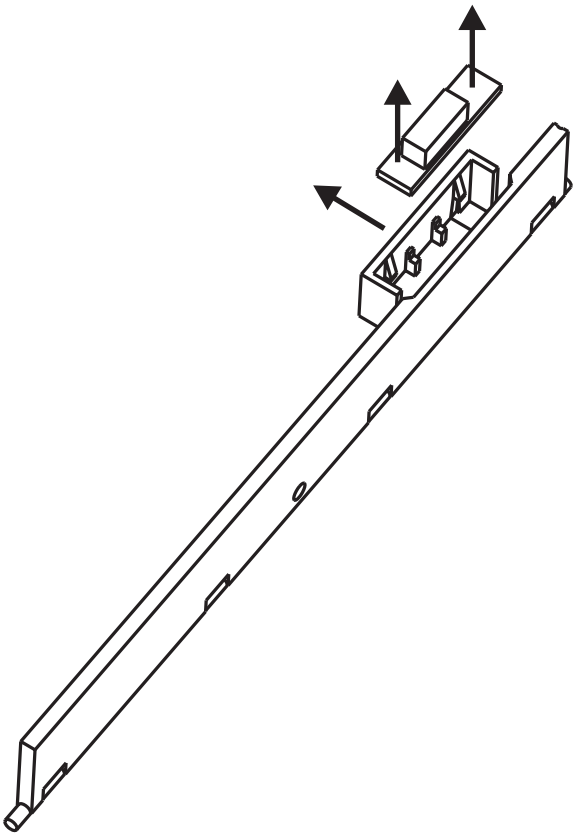


3. Slip the sensor cable out of the channel in the upper front cover.



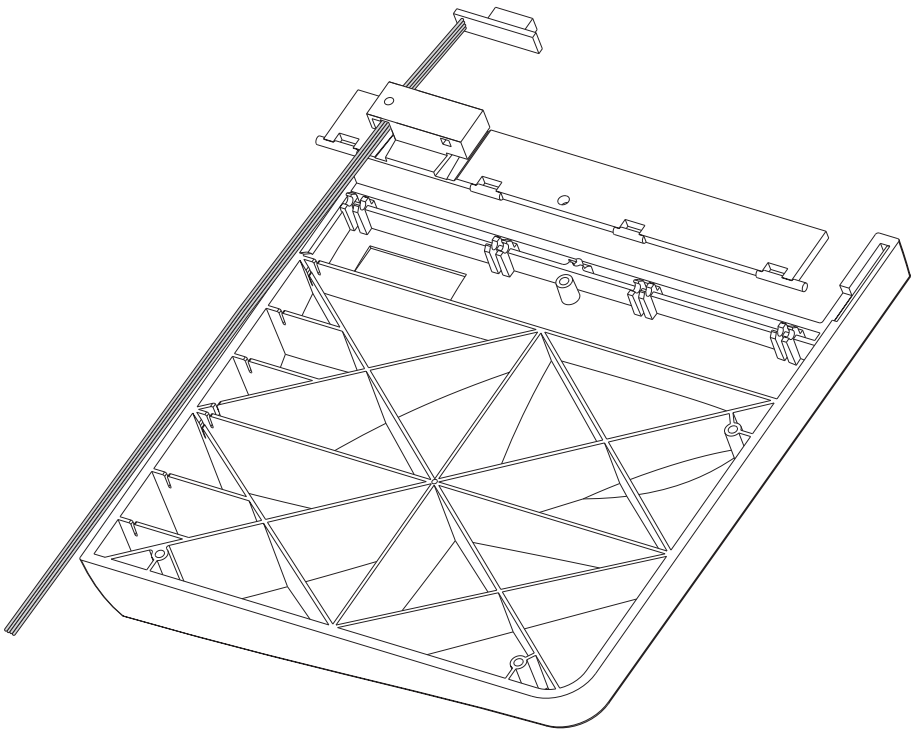
4. Pull the label taken sensor PCBA out of the sensor gate's sensor shroud. Gently pull the shroud body away from the gate to get the PCBA past the snap locks on the inside of the shroud.

5. Slide the cable out of the shroud.



Installation

1. Reverse the process.



Peel Mechanism

Tools:

#1 Philips screw driver

Removal

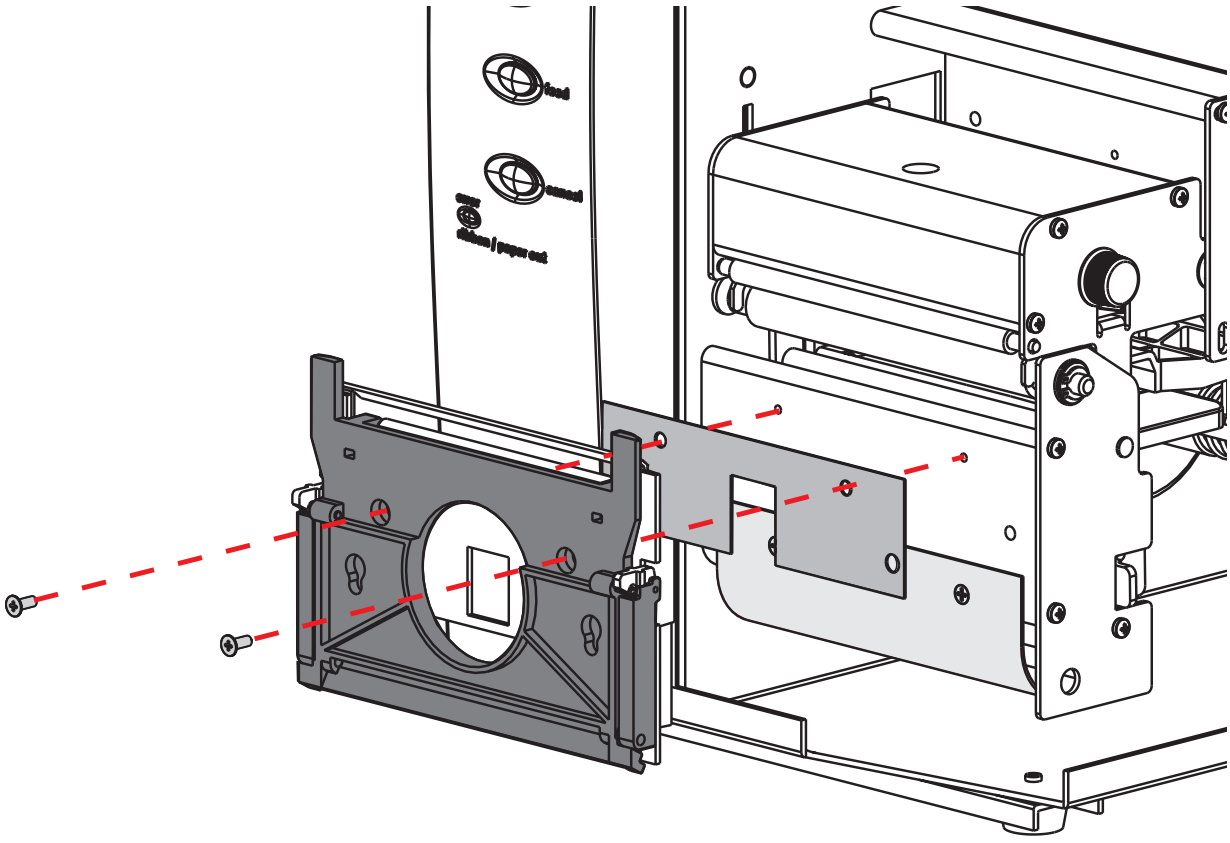
1. Remove the two (2) screws holding the peeler mechanism to the lower print mechanism. The peeler spacer plate will also become loose.

Installation

1. Place and hold the peeler spacer plate against the lower print mechanism with the cutout facing down. Align the plate up with the mounting two (2) holes.

2. Place the peel mechanism against the spacer plate and insert the two (2) flat head screws. Tighten the screws to 4.7 inch-pounds torque.

3. Optional - Verify the label rewind tube torque setting is set to 17 ±1 inch-pounds with the “Tube Tension Adjustment Procedure”, 980428-154.



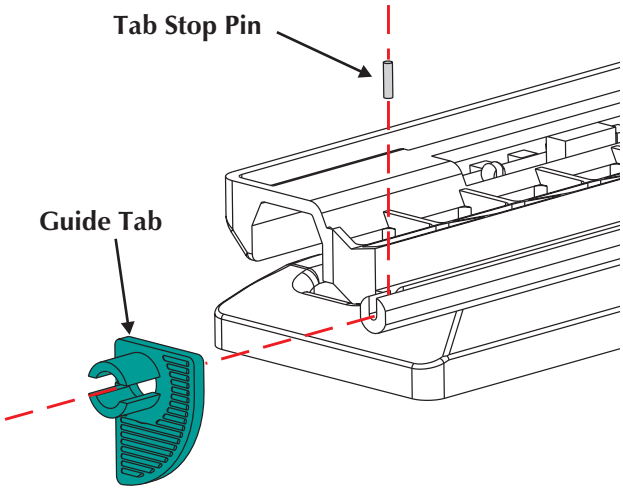
Tools:

Pliers and a scribe

Removal

1. Push the tab stop pin out of the guide tab's slide on the label guide and sensor assembly.

2. Rotate the guide tab down and slide the tab off the slide.

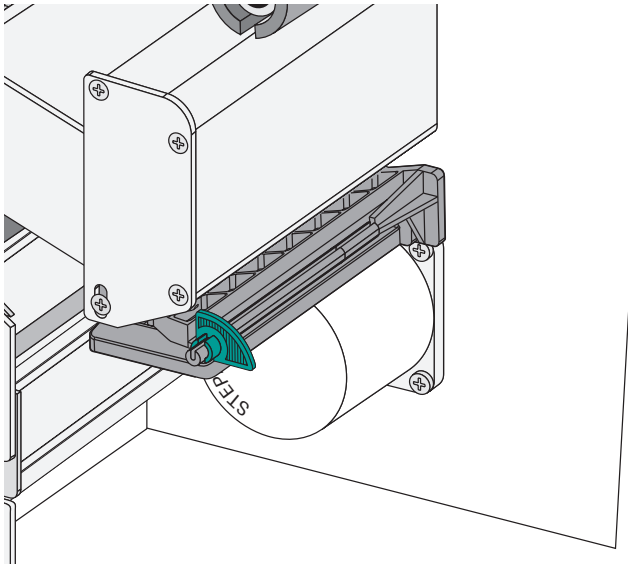


Installation

1. Slide the guide tab on the slide.

2. Insert the tab stop pin until it is flush with the bottom.

3. Pull the guide tab to the outside of the slide and verify the guide tab can rotate up.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

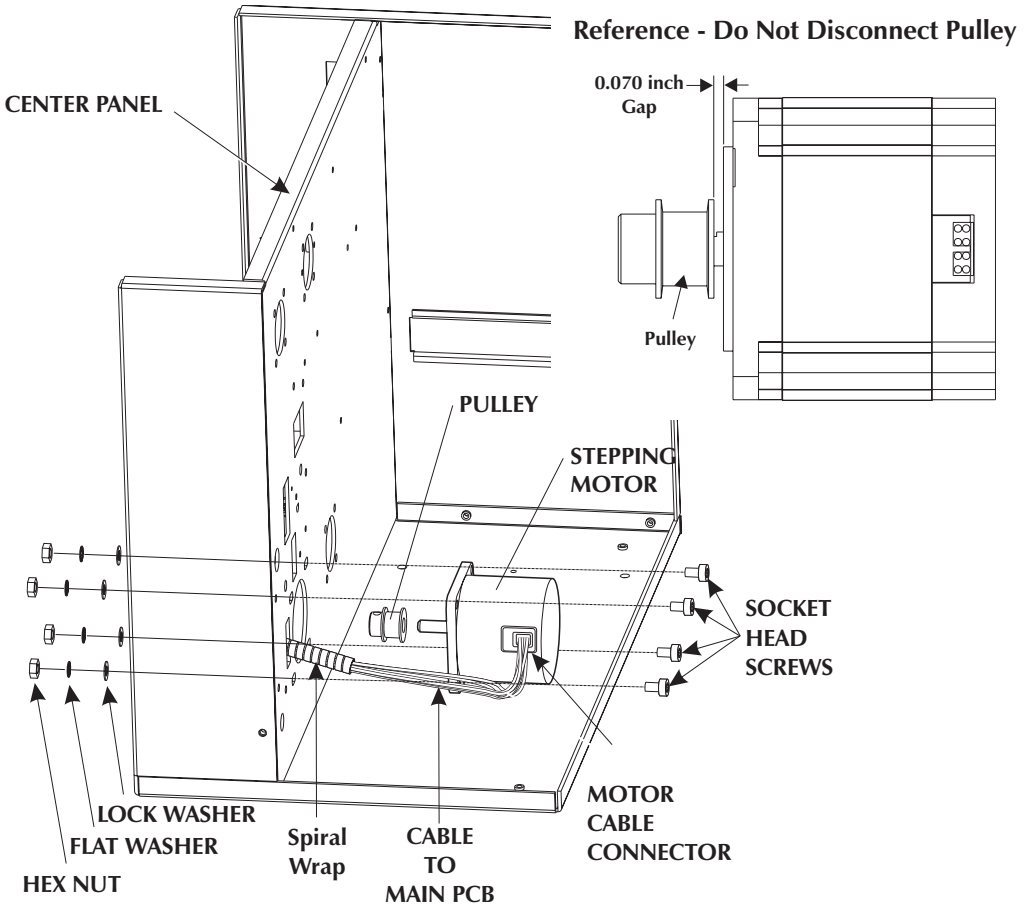
Tools:

4mm Allen hex key socket driver

Removal

1. Remove the four (4) M5x14 socket head mounting screws securing the motor to the center panel. (4mm Allen head socket - 1/4 inch hex shank for use with torque gauge).

2. With the motor loose, disconnect the belt and then the motor cable from the motor.



Installation

1. Attach the motor cable to the new motor.

2. Insert motor, but leave the mounting screws loose.

3. Re-install the belt around the 42-tooth pulley on the platen and the motor pulley.

4. Tighten the belt by sliding the motor toward the rear panel. Secure the motor in place. Refer to Platen Belt and Motor Adjustment procedure, 980428-153, for setting the recommended belt tension.

Ribbon Pulley (60 tooth)

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Tools:

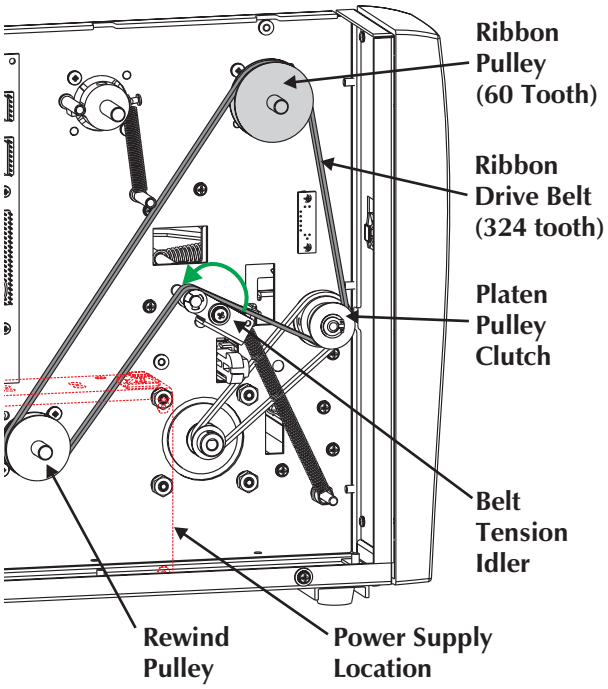
11/32 Allen driver

Removal

1. Loosen the ribbon belt by rotating the belt tension idler counter-clockwise. Lift the ribbon belt off the ribbon pulley.

2. Rotate ribbon pulley to view set screw from the top of the center panel. Loosen set screw.

3. Remove ribbon pulley from shaft.



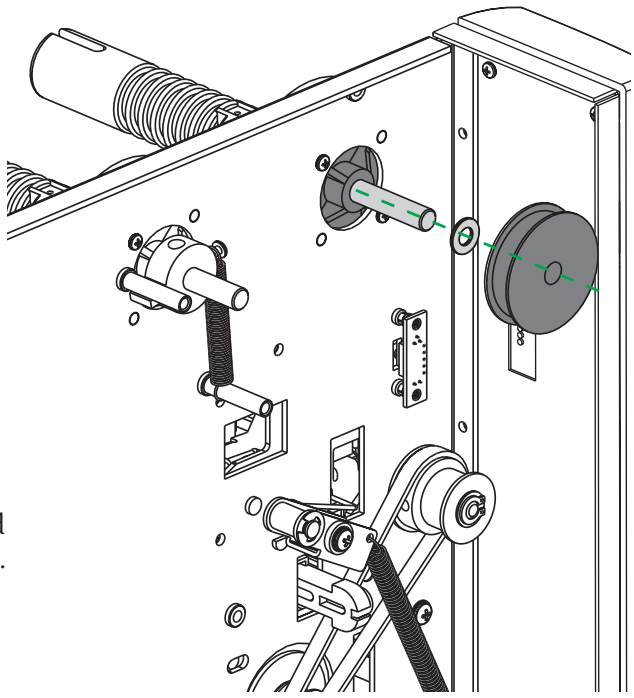
Installation

1. Slide a nylon washer and then the ribbon pulley onto the tube shaft. The pulley's set screw faces the center panel.

2. Hold ribbon take-up tube against shaft support housing and center panel. Use a .005 inch shim to space pulley from shaft support housing. Tighten set screw to 11 inch-pounds torque. Use a thread lock (Loctite) on the set screw.

3. Place the belt on rewind pulley behind the power supply.

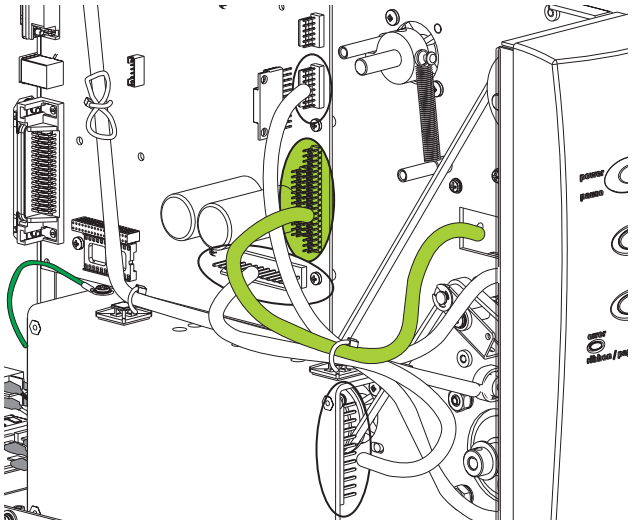
4. Place the belt over the belt tension idler and around the outside gear of the pulley clutch. Rotate the tension idler counter-clockwise to provide slack. Pull the belt over the ribbon pulley. Release the tension idler.



Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

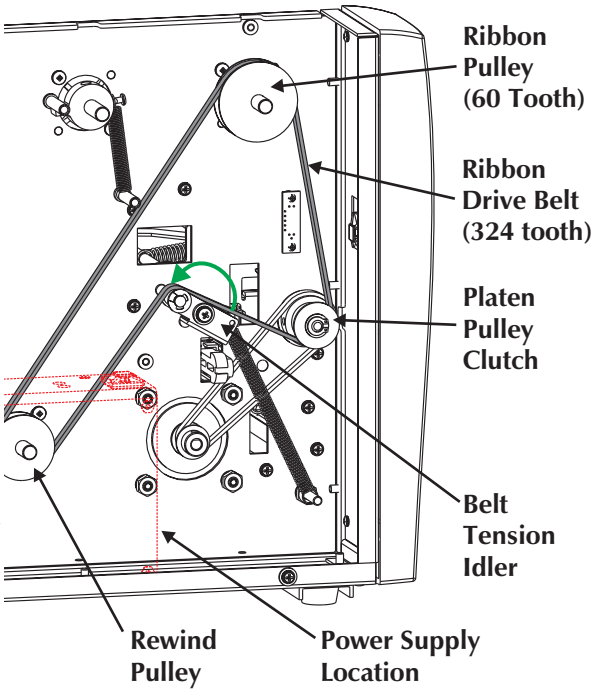
Removal



1. Cut the tie-wrap securing the main cable harness to the power supply. **Caution - Do not cut the cables!**

2. Disconnect the printhead cable (JP21) from main PCBA.

3. Loosen the belt by rotating the belt tensioner idler counter-clockwise. Lift the ribbon belt off the ribbon pulley, rewind pulley and then out.



Installation

1. Slide belt into position <u>with the print head ribbon cable passing through the belt</u>.

2. Place the belt on rewind pulley behind the power supply.

3. Place the ribbon belt over the belt tension idler and around the outside gear of the pulley clutch assembly. Rotate the tension idler counter-clockwise to provide slack. Pull the belt over the ribbon pulley. Release the tension idler.

4. Reconnect the printhead cable to the main PCBA .

5. Re-tie the main PCBA harness. Use the "Securing the Harness" procedure.

Platen Belt (120 tooth)

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

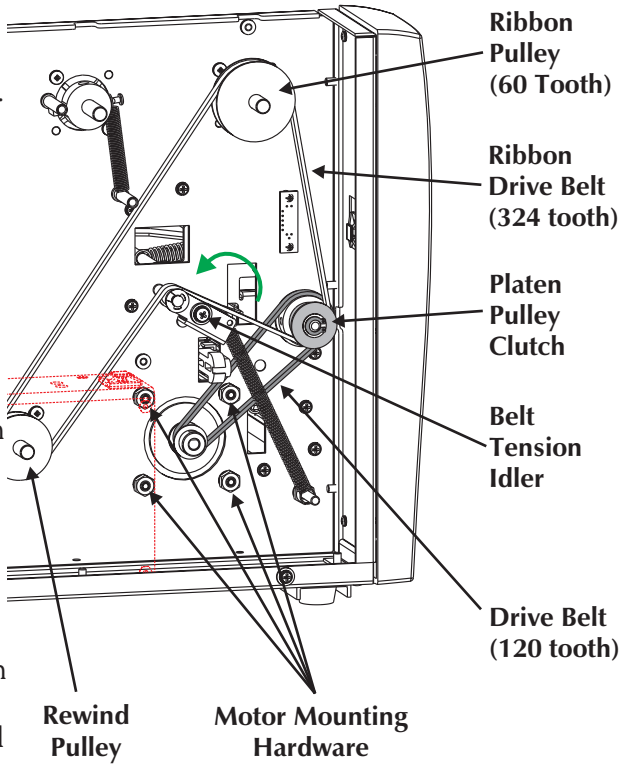
Tools:

TORX tool with #T25 tip or 4mm allen head

Removal

1. Loosen the ribbon belt by rotating the belt tension idler counter clockwise. Lift the ribbon belt off the ribbon and clutch pulleys. Do not disconnect the print head cable.

2. Loosen the four (4) M5x14 socket head mounting screws securing the motor to the center panel. Manually walk the platen belt off the pulley.



Installation

1. Slide platen belt on the motor gear and then onto the 42 tooth pulley inside of the pulley clutch.

2. Place the belt on rewind pulley (behind the power supply).

3. Place the ribbon belt around the belt tension idler and lower pulley. Rotate the tension idler counter-clockwise to provide slack. Pull the belt over the ribbon pulley. Release the tension idler.

4. Tighten the platen belt by sliding the motor toward the rear panel. Secure the motor in place. Refer to Adjusting Belt Tension for setting the recommended belt tension.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Tools:

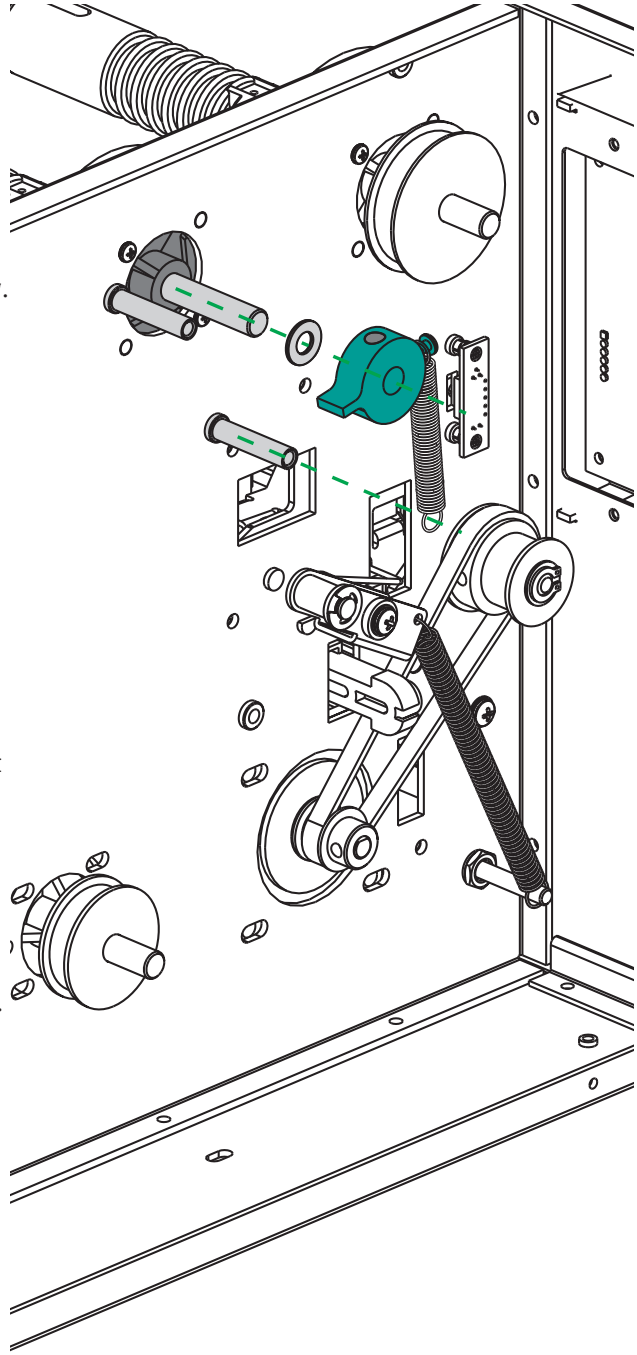
Pliers for E-ring retainers (12R)
11/32 Allen driver

Removal

1. Loosen supply ribbon tube's collar set screw.
2. Slide the collar off the tube shaft and spring off the post.

Installation

1. Slide the nylon washer and then the collar onto the tube shaft.
2. Slide the end of the collar's spring on the post below the collar.
3. Rotate the shaft of the supply ribbon tube has the set screw and slot facing up. The set screw needs to face up to allow access to adjust tube tension.
4. Hold the ribbon tube against the center panel. Use a .005 inch shim to space the collar from the shaft support housing. Tighten set screw to 11 inch-pounds torque. Use a thread lock (Loctite) on the set screw.

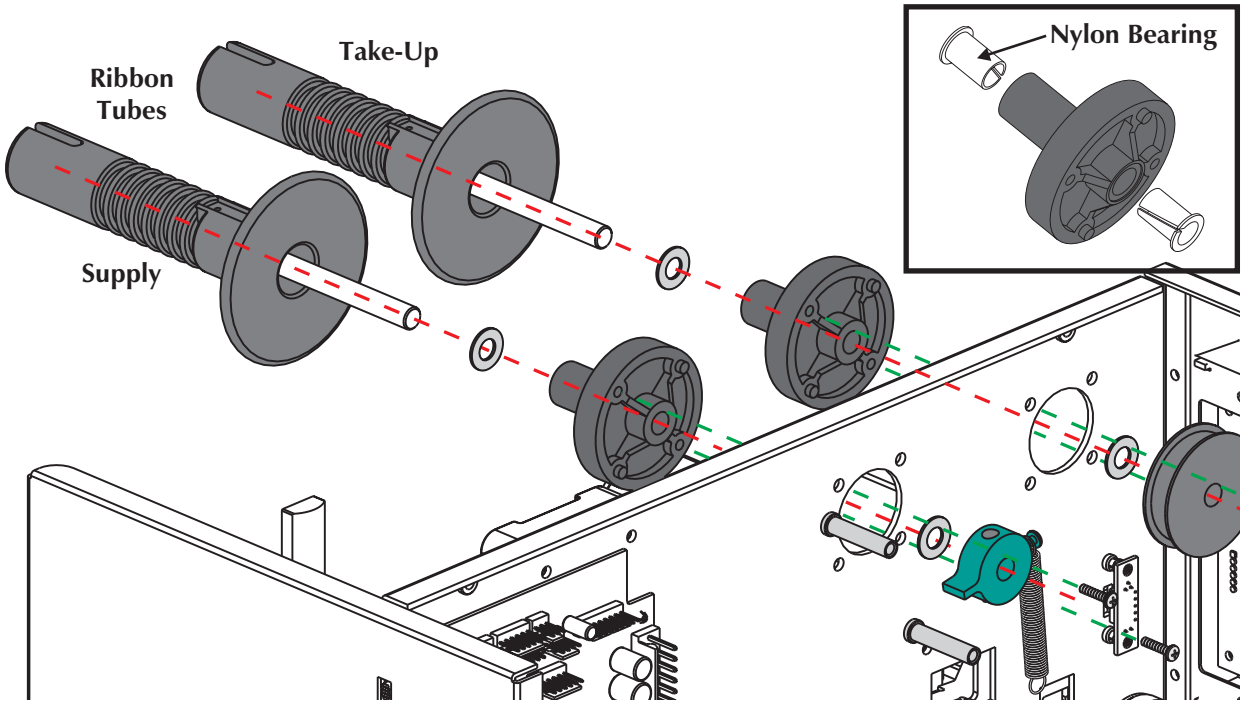


Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Take-Up Ribbon Tube Or Shaft Support Housing - The ribbon belt and pulley must be removed from the tube shaft prior to preceding. (980428-132)

Supply Ribbon Tube Or Shaft Support Housing - The ribbon supply collar and spring must be removed from the tube shaft prior to preceding. (980428-138)



Tools:

#2 Philips screwdriver

Removal

1. With the collar or pulley removed, slide the ribbon tube out of the shaft support housing.

2. Shaft Support Housing only - Remove the two (2) mounting screws securing the shaft support housing to the center panel.

Installation

1. **Shaft Support Housing only** - Insert the two (2) nylon bearings into each end of the shaft housing. No lubrication is needed.

2. **Shaft Support Housing only** - Insert the housing into the center panel. Rotate the housing to align the two (2) molded posts. Attach the housing to the center panel with two (2) screws.

3. Place the nylon washer on the shaft and push it against the tube assembly.

4. Slide the tube assembly into the shaft support housing and re-install the collar (supply) or ribbon belt and pulley (take-up).

Preparations

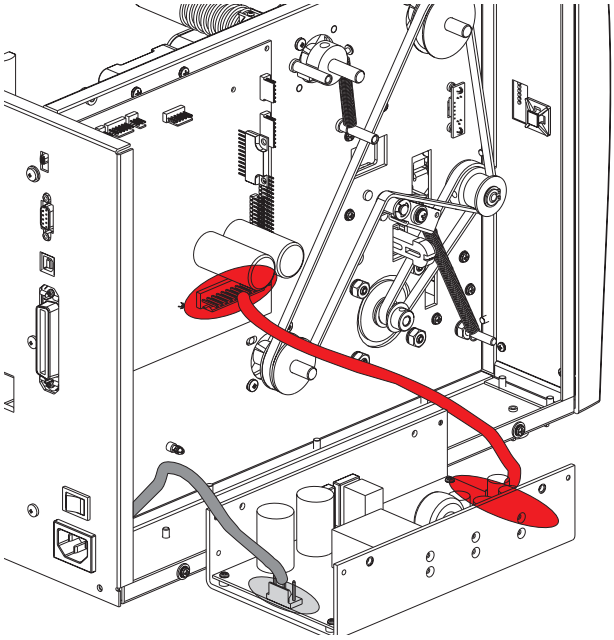
The exterior cover must be removed prior to proceeding. (980428-101)

The power supply must be loosened from the printer's bottom plate. (980428-103)

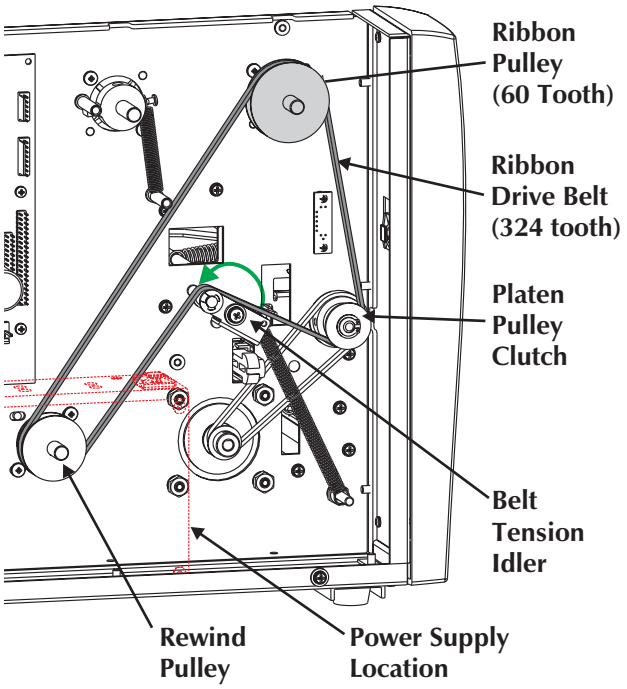
Tools:

#2 Philips screw driver
11/32 Allen driver

Removal

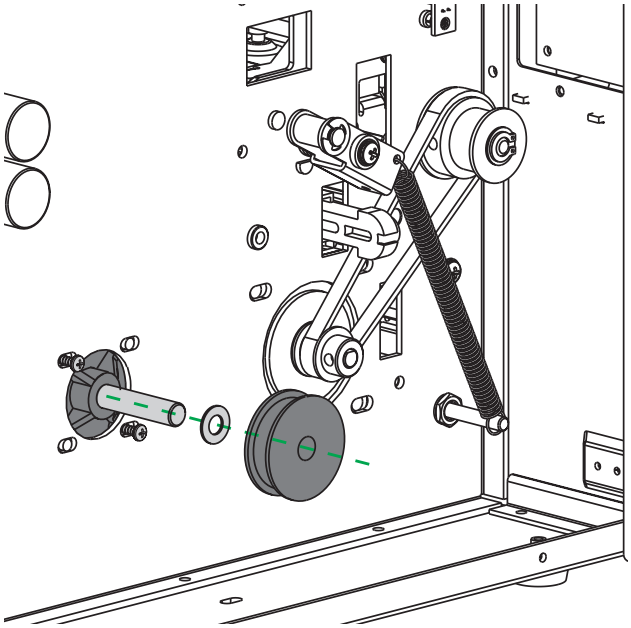


1. Partially disconnect the power supply and place it next to the printer base to gain access to the rewind assembly.



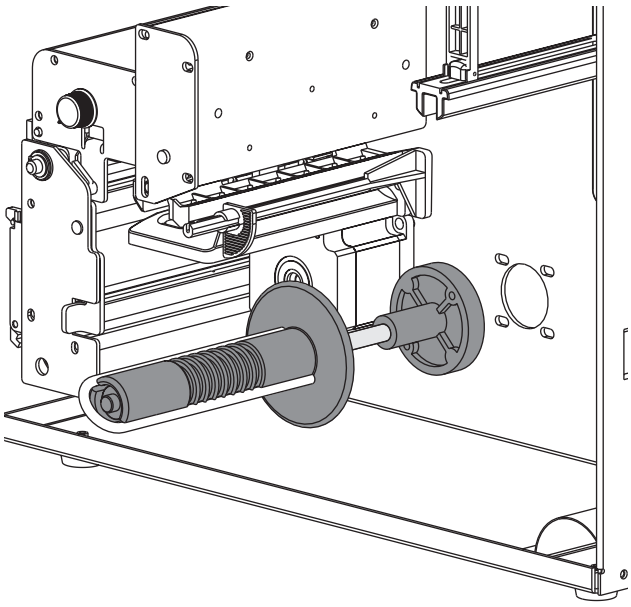
2. Loosen the ribbon belt by rotating the belt tension idler counter-clockwise. Lift the ribbon belt off the ribbon pulley.

3. **Pulley Only** - Rotate rewind pulley to view set screw from the top of the center panel. Loosen set screw and slide rewind pulley off the shaft.

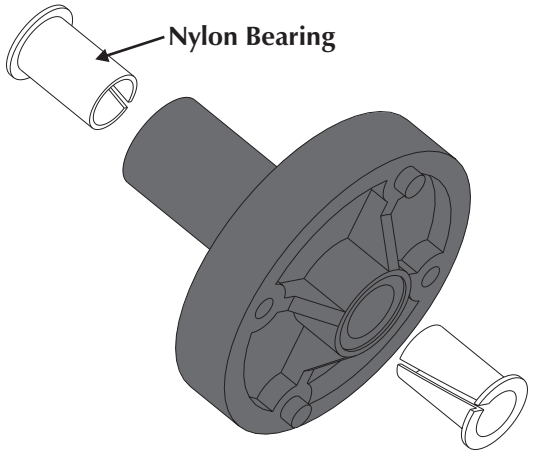


4. **Rewind Tube Assembly Only** (to here) - Slide the rewind tube assembly out of the shaft support housing.

5. **Shaft Housing** - Remove the two (2) screws holding the shaft support housing to the center panel.



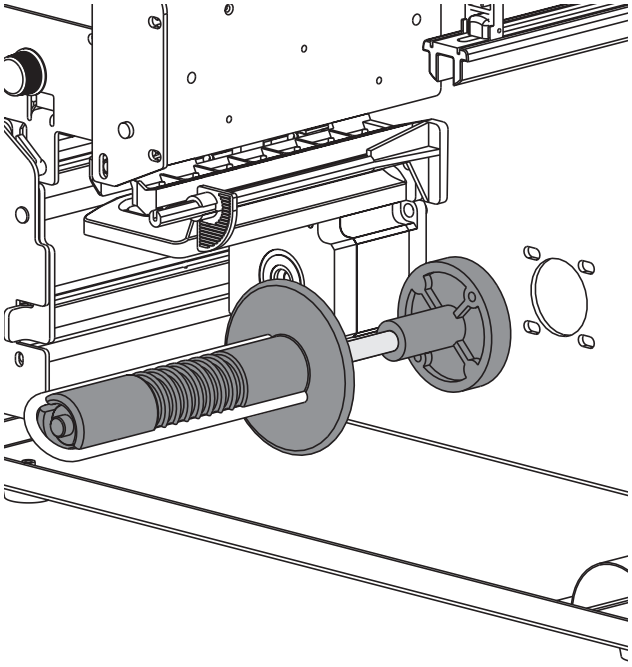
Installation



1. **Shaft Housing** - Insert the two (2) nylon bearings into each end of the shaft housing.

   No lubrication is needed.

2. Re-attach the shaft housing to the center panel with the two (2) screws. Tighten the two (2) screws retaining the label rewind tube assembly to 11 inch-pounds torque.



3. **Rewind Tube Assembly** - Insert the thin nylon washer on the shaft of the tube assembly.

4. Insert the rewind tube into the shaft support assembly.

5. On the service side of the printer, insert another thin nylon washer on the shaft of the tube assembly.I

6. **Pulley** - Slide rewind pulley on shaft. Use a .005 inch shim to space pulley from shaft support housing.

   Tighten set screw to 11 inch-pounds torque. Use a thread lock (Loctite) on the set screw.

7. **Ribbon Belt** - Place the ribbon belt around the rewind pulley, over the belt tension idler and around the outside gear of the pulley clutch assembly. Rotate the tension idler counter-clockwise to provide slack. Pull the belt over the ribbon pulley. Release the tension idler.

8. Re-attach the power supply and exterior cover.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

The power supply must be moved to access the rewind pulley.
(Procedures 980428-103, 980428-009)

The platen belt, clutch pulley and 42 tooth pulley must be removed prior to proceeding.
(980428-137)

Tools:

4mm Allen hex key socket driver
#2 Philips Screwdriver
Pliers for E-ring retainers (12R)
11/32 Allen driver

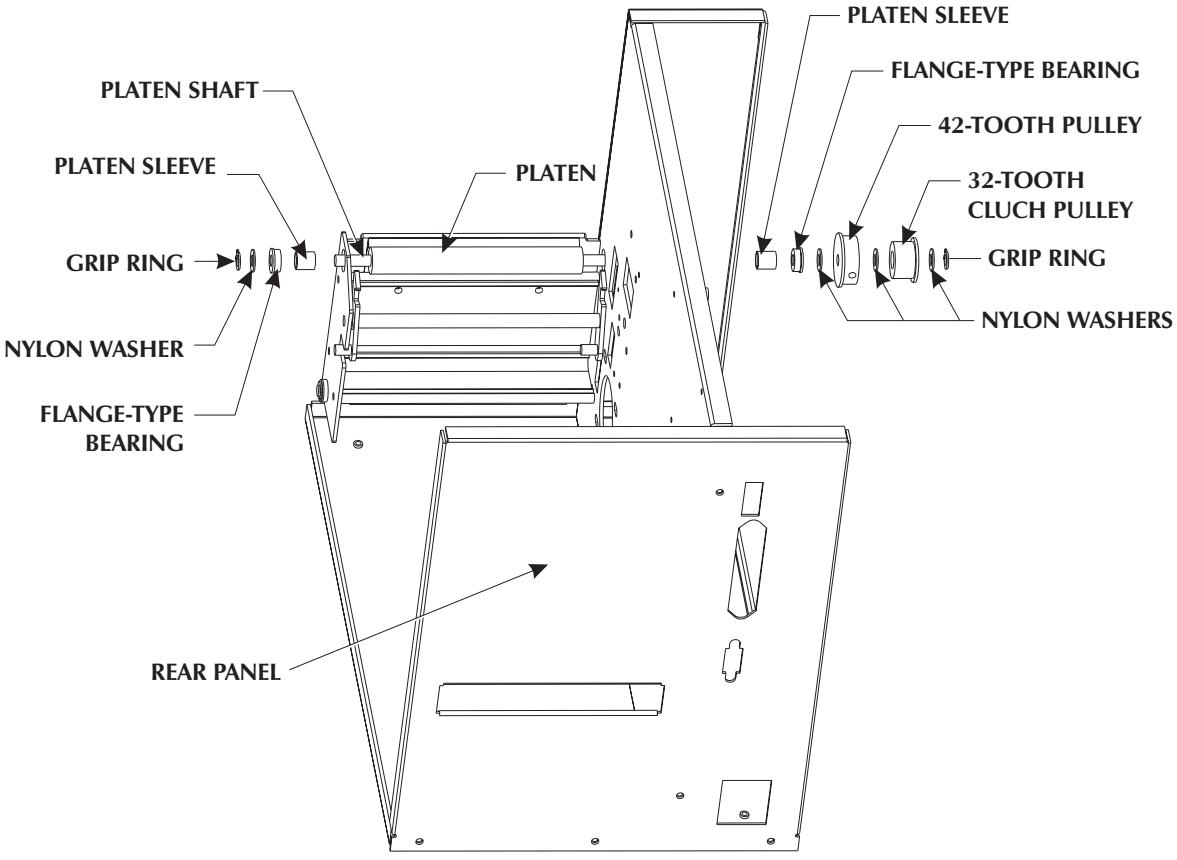
Removal

1. Remove the E-ring from the end of the platen shaft on the outside of the lower print mechanism.

2. Remove nylon washers and flange bearings.

3. Slide the platen right (from front) and remove the brass platen sleeve and then left and remove the other sleeve from the other side of the center panel.

4. With platen pushed into the center panel, lift the other side up and out of the lower print mechanism.



Installation

1. Slide the long shaft end of the platen roller into the printer's center panel.

2. With the platen roller's shaft perpendicular to the center panel, slide the short end of the platen shaft into the lower print mechanism's side bracket.

3. Place, in sequence, the following on the outside platen shaft: a platen sleeve, flange bearing (flange outside), and a nylon washer. Lock the them on the shaft with the E-ring.

4. From inside the center panel, pull the platen shaft tight against the lower print mechanism's side plate. Verify the bearing is through the side plate and resting on the flange of the bearing.

5. Place, in sequence, the following on the inside platen shaft: a platen sleeve, flange bearing (flange outside), and a nylon washer.

6. The platen kits parts will be secured when the 42 tooth platen pulley is mounted. See the Platen Clutch procedure, 980428- 135, to complete installation.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

The peel mechanism must be removed prior to proceeding. (980428-125)

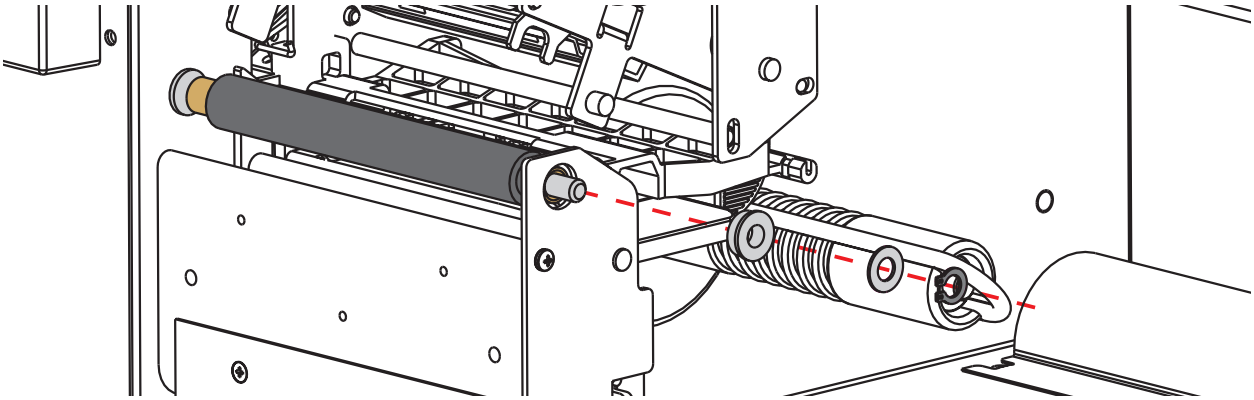
Tools:

#1 & #2 Philips Screw drivers
11/32 Allen driver

Removal

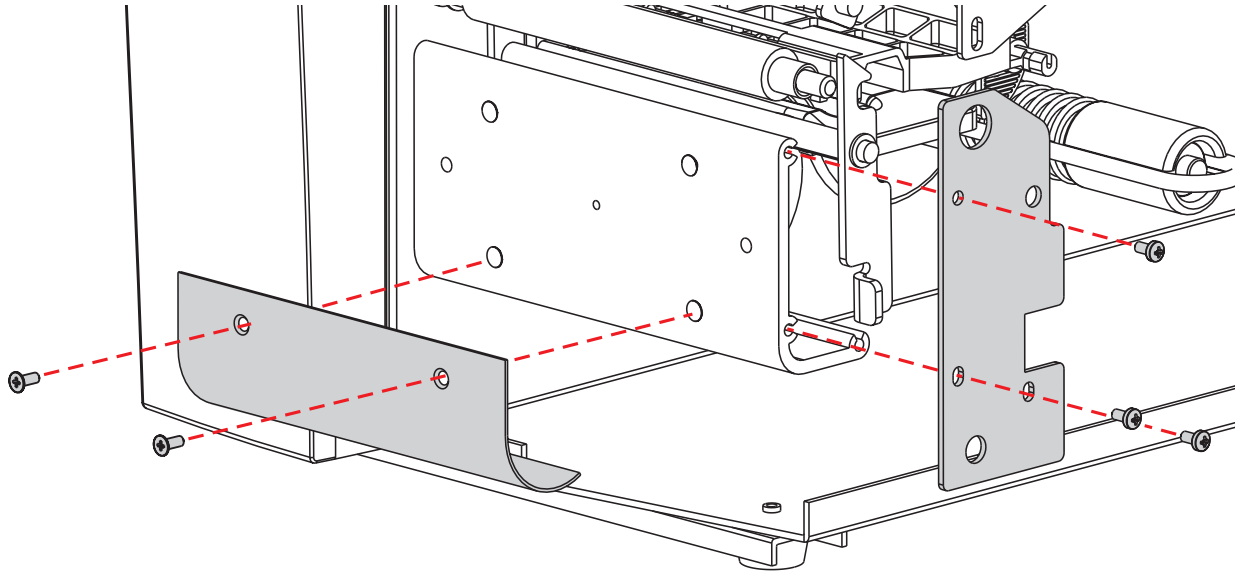
1. Remove the peel mechanism from the lower print mechanism.

2. Remove the E-ring from the end of the platen shaft on the outside of the lower print mechanism. Remove the nylon washer and flange bearing.



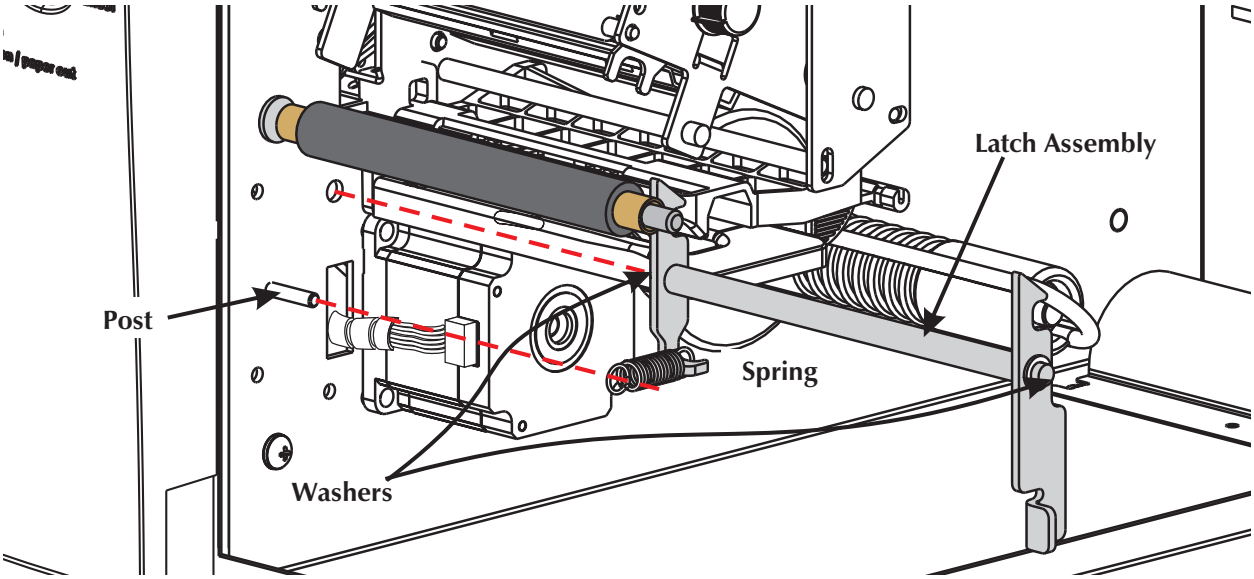
3. Remove the two (2) screws securing the (curved) label rewind plate from the lower mechanism.

4. Remove the three screws securing the side plate to the lower print mechanism. Slide the plate off the platen shaft and latch assembly. Note the washer on the outside of the latch pivot shaft.



5. Remove the lower print mechanisms extrusion bracket that the peel mechanism and label rewind plate were mounted to.

6. Slide the latch assembly out of the assembly's shaft pivot in the center panel and the spring off the post.



Installation

1. Loosely attach the extrusion to the center panel with a single screw in the bottom screw hole. Let the extrusion swing down to the outside of the printer.

2. Slide a metal washer on each end, two (2) total, of the latch assembly's shaft. Insert the latch assembly's shaft into the center panel.

2. Hook the spring to the post on the center panel and the latch assembly's prong.

3. Swing the extrusion up and attach it to the center panel with the other two screws to finish mounting the extrusion. Be careful, do not knock the latch assembly out of the center panel. Tighten the all three (3) screws to 11 inch-pounds torque.

4. Place the side plate on the latch assembly and attach the plate to the extrusion with three (3) screws and washers. Tighten the three (3) screws to 11 inch-pounds torque.

5. Place, in sequence, the following on the outside platen shaft: a platen sleeve, flange bearing (flange outside), and a nylon washer. Lock the them on the shaft with the E-ring.

6. Attach the (curved) label rewind plate with the two (2) flat head screws to the lower print mechanism. Tighten the screws to 4.7 inch-pounds torque.

7. Attach the peel mechanism onto the lower print mechanism with two (2) flat head screws and washers. Tighten the screws to 4.7 inch-pounds torque.

Preparations

Before starting the procedure, open the printer, then remove media from the printer.

The exterior cover must be removed prior to proceeding. (980428-101)

Remove the printhead and set it on a clean, soft and static safe surface (mat). (980428-102)

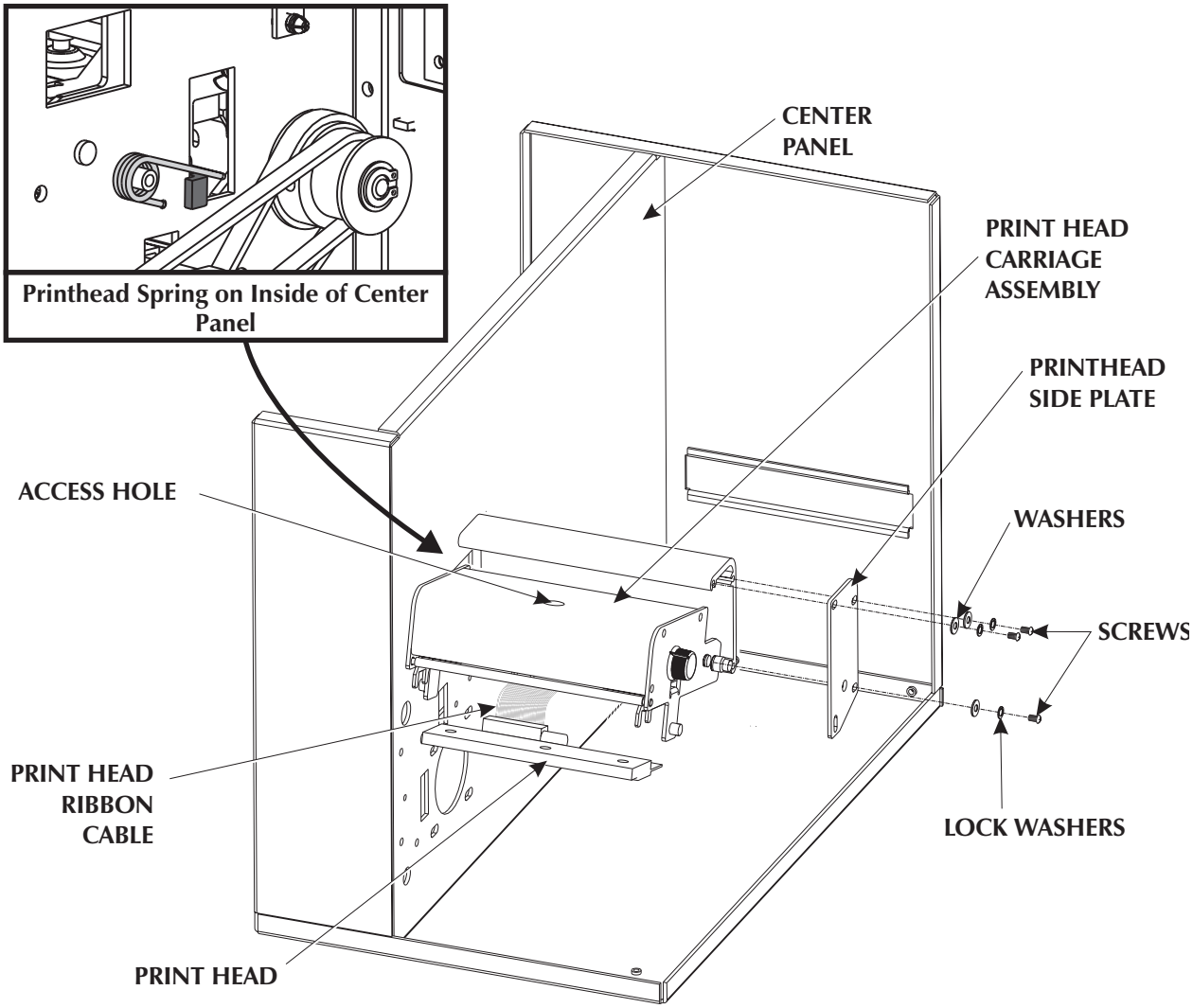
Tools:

#2 Philips and a flat blade screwdrivers

Removal

1. Open the printhead and unhook the printhead carriage spring from the other side of the center panel. Push down on the spring while holding the printhead up to release the spring.

2. Remove the three (3) remaining screws retaining the printhead side plate to the center panel of the printer. Lift the printhead carriage out. Note the carriage pivot and cable routing.



Installation

1. Slide the printhead cable through the printhead carriage assembly.

2. Place the printhead carriage's pivot shaft into the pivot hole in the center panel.

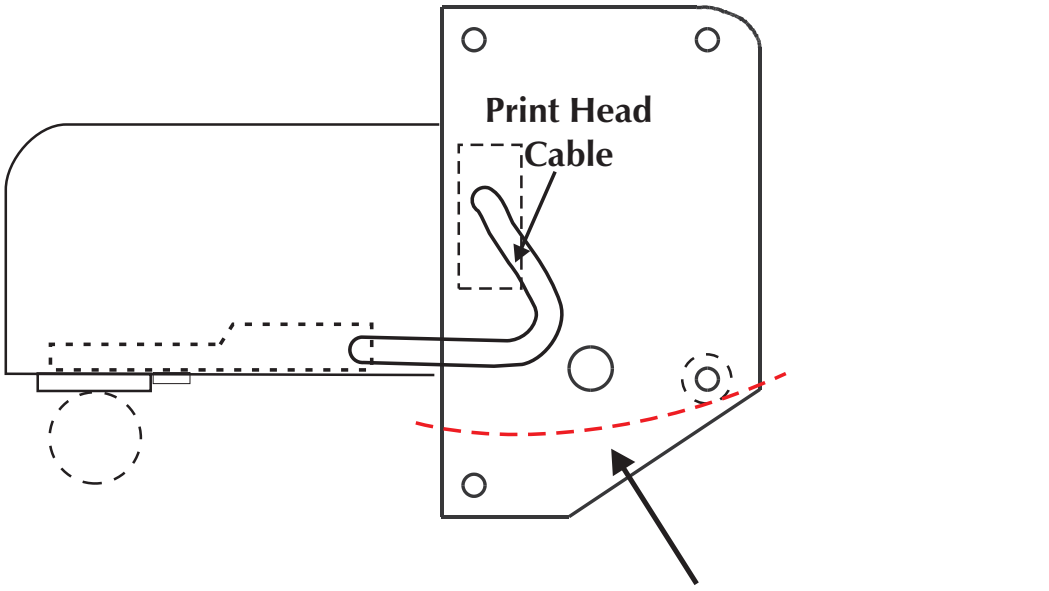
2. Place the printhead side plate on the carriage printhead pivot hole on the opposite side. Loosely secure the carriage and side plate to the extrusion bracket with three (3) screws and washers.

3. Push the side plate to match the upper print mechanism's extrusion profile (rear and top). Tighten the three (3) screws to 15.8 inch-pounds of torque.

4. Reposition the printhead spring to the carriage. Lift the printhead carriage up and push the spring arm down and then into the carriage to engage.

5. Re-attach the printhead.

6. Verify the printhead's cable does not extend below the upper printhead extrusion.

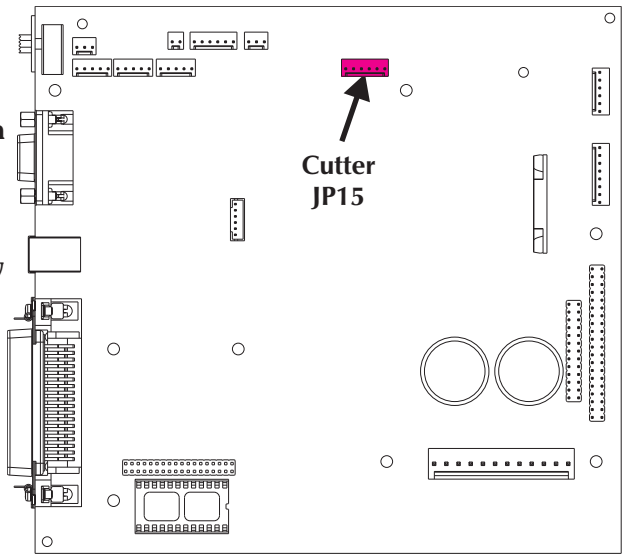

Print Head
Cable
Check that Cable routing does not extend
below this area with the print head
in the open or closed positions

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

Note the main cable harness routing and cable tie positions. (980428-109)

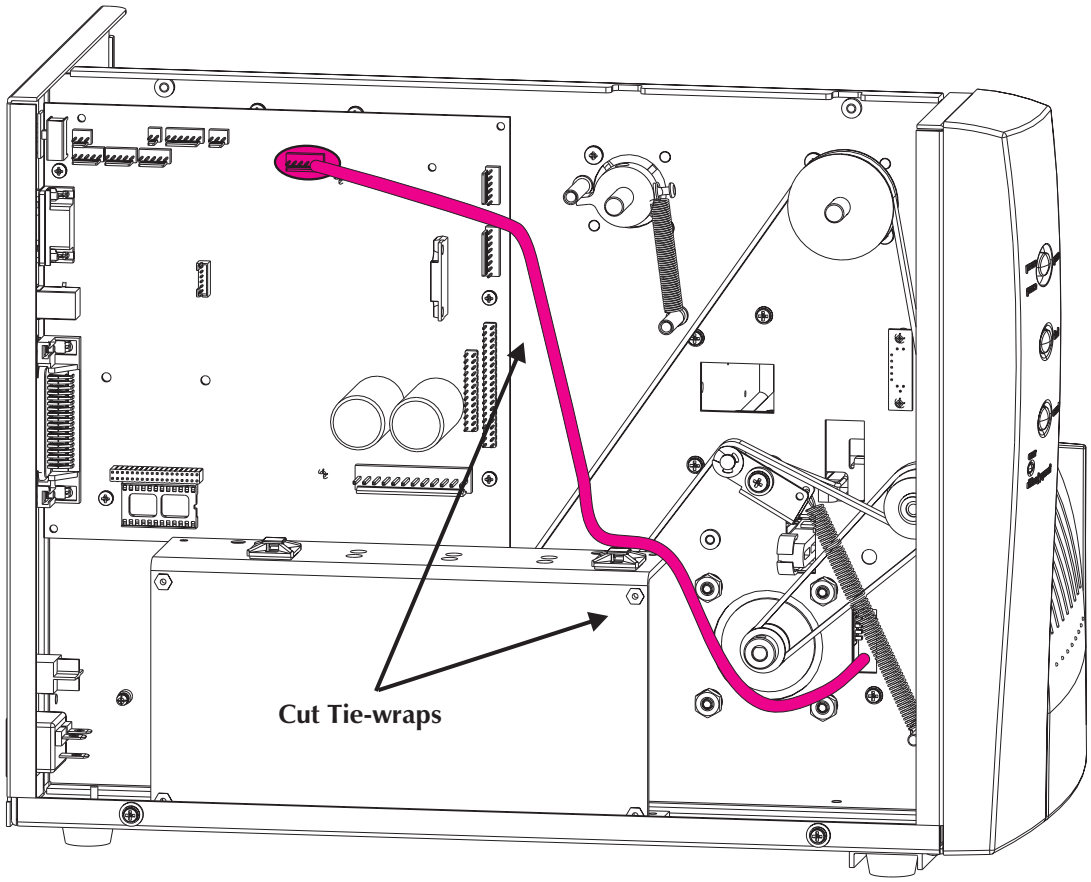
Removal



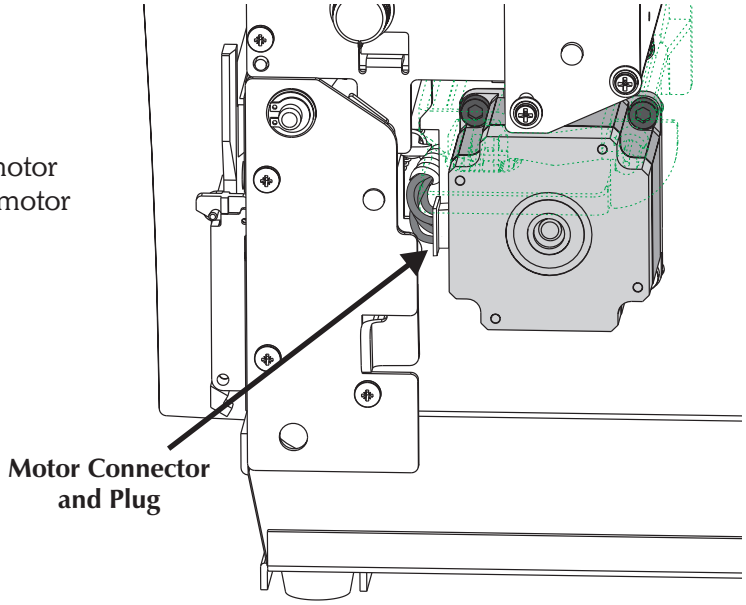
1. Cut the front tie-wrap securing the main cable harness to the power supply. **Caution - Do not cut the cables!**

2. Cut the tie-wrap securing the cutter cable to the motor cable, if the cutter cable is already installed.

3. Disconnect the cutter cable (JP15 from main PCBA, if present.

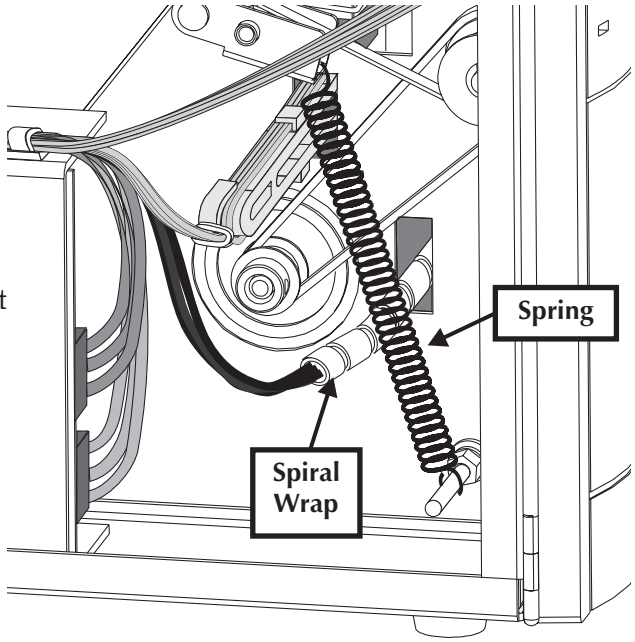


4. Remove the spiral wrap from the motor (and cutter) cable. Do not pull the motor cable's connector out of the motor.

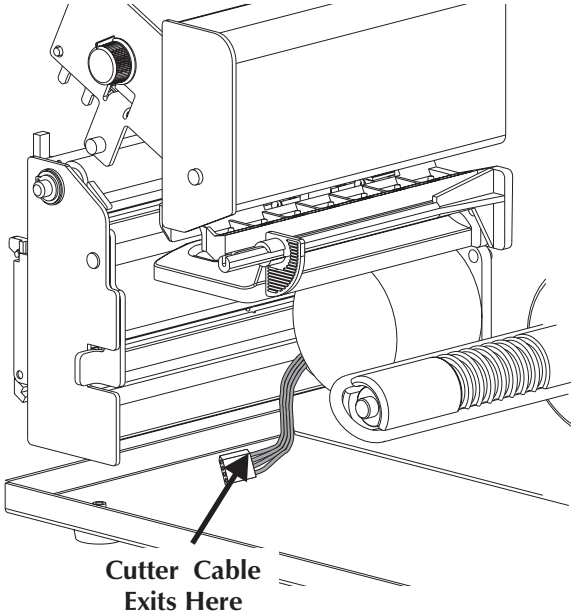


Installation

1. Connect the cutter cable (JP15) to the main PCBA.
2. Insert the cutter through the center panel next to the motor cable.
3. Tie the cutter cable to the motor cable about 1.5 inches from the motor cable's connector on the main PCBA.
4. Attach the cutter cable to the main cable bundle at the front cable anchor tie on the power supply.
5. Add the spiral wrap to the cutter and motor cables. The spiral wrap should extend as far from the center panel as the tension idler spring in the printer to prevent pinching the cable.
6. Use the "Securing the Harness" procedure to dress the wiring to clear moving parts and provide service loops.



Note - See the user's manual or cutter mounting instruction to mount and use the cutter.



Preparations

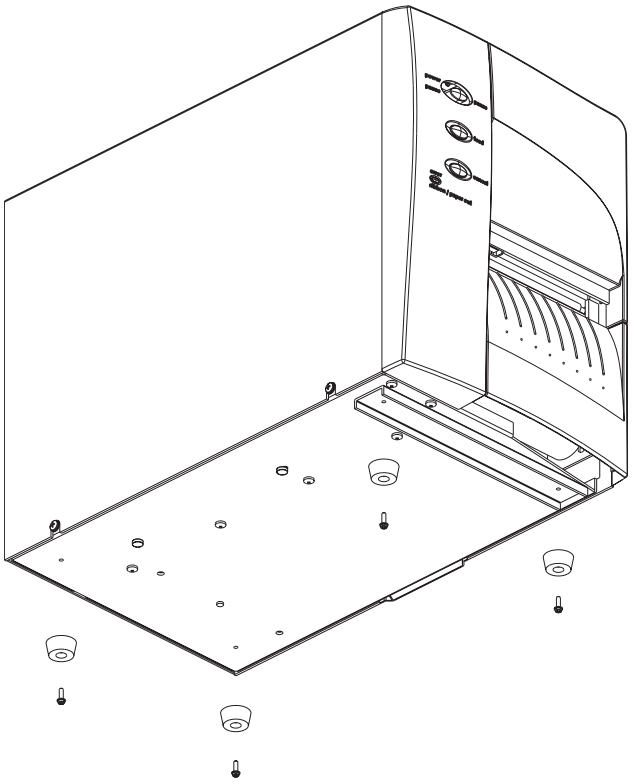
Before starting the procedure, open the printer, then remove media from the printer.

Tools:

#1 Philips screwdriver

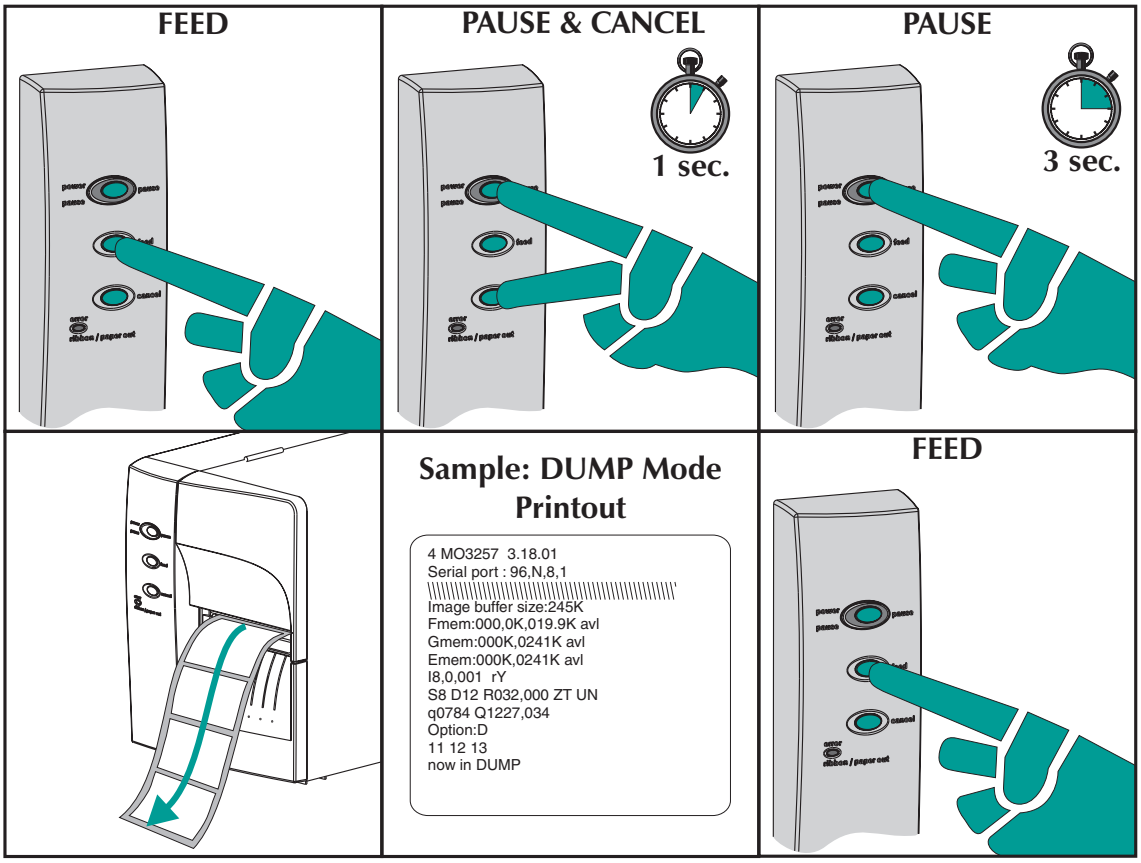
Instructions

1. Close the printer cover.
2. Roll the printer on the left side.
3. Remove the feet by removing the screw in the center of the foot.
4. Secure the front feet with the longer screws. The shorter screws are used to secure the back feet.



Checking the Installation

1. Turn on the printer and run your printer's AutoSense routine to get a dump mode printout.



This action tests the printer's media drive and printing capabilities.

You can also check the printout for the upgrade or option you loaded.

- A — Firmware version number
- B — Memory (available bytes)
- C — Real time clock option (if installed)

```
4" UKQ1837      V4.03        <- A
Serial port : 96,N,8,1
Image buffer size:0507K      <- B
Fmem:000.5K,060.9K avl
Gmem:024K,0045K avl
Emem:000K,0045K avl
I8,0,001  rN
S4 D10 R064,000   ZT UN
q1600 Q1209,026
Option:
17 21 25

Date: 02-19-00
Time: 12:44:00               <- C

now in DUMP
```

If you replaced the main PCBA, the firmware may need updating. Verify the version number on the dump mode printout, download current firmware to the printer. The latest firmware version and the firmware downloading software for your Zebra printer can be found at Zebra web site at: http://www.zebra.com

Also, you will need to reload all of your specific soft fonts, forms or graphics that were previously loaded into the printer before you start any new print jobs at require these items.

Preparations

The exterior cover must be removed prior to proceeding. (980428-101)

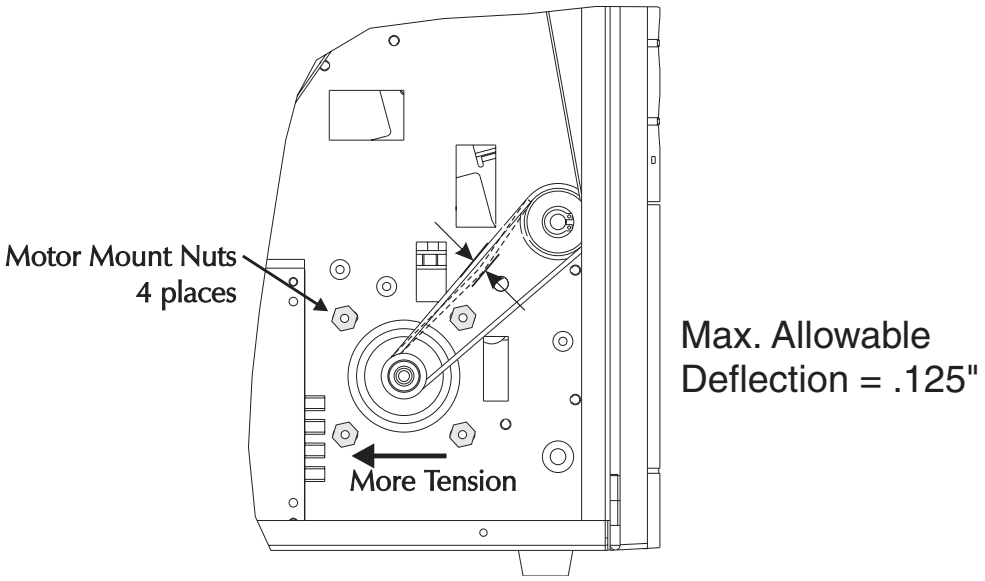
Tools:

4mm Allen hex key socket driver

Adjustment

1. While applying 6-8 lbs. pressure on the motor, towards the rear of the printer, tighten the motor mounting screws to 23.7±2 inch-pounds of torque. (This step sets belt tension).

2. Verify the belt teeth have aligned with pulley cogs. Rotate belt one revolution. Do a rough check of belt tension by applying light to moderate pressure on the belt as shown.



Preparations

Before starting the procedure, open the printer, then any remove media from the printer.

The exterior cover must be removed prior to proceeding. (980428-101)

Tools:

3/32" Allen driver

Torque Tube Tool and Torque Wrench

Measuring Tension

The ribbon and label rewind tubes have unique tube tension settings for their internal clutches. Spare ribbon and label rewind tubes have had a run-in period and are preset to nominal torque settings for your printer. The run-in period is critical to guaranteeing a long and consistent tube tension setting.

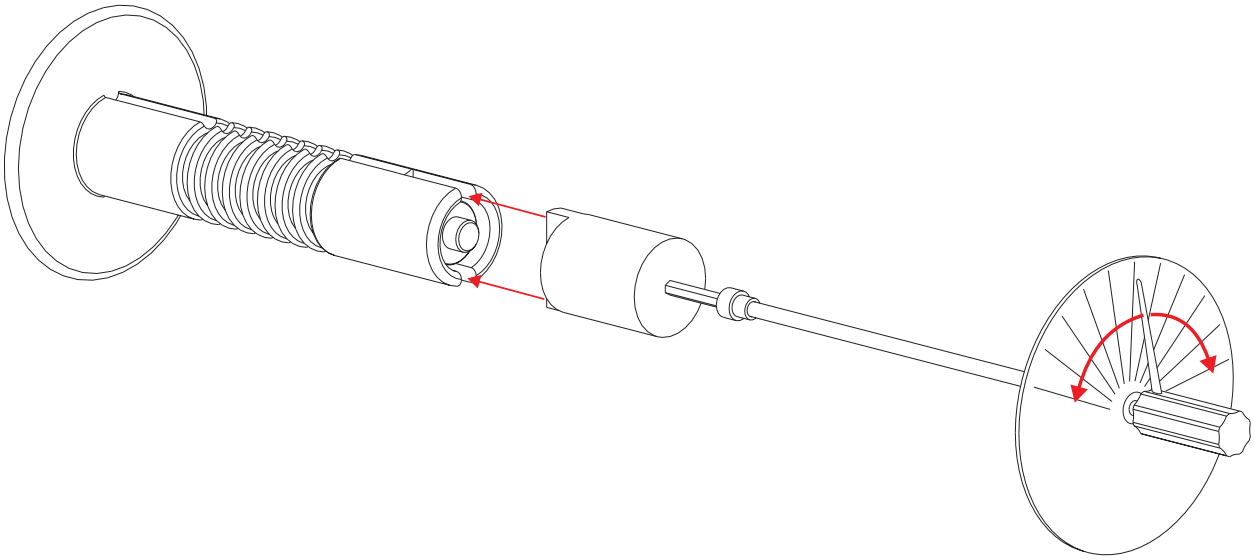
Models	Tube Type	Torque Setting (inch-pounds)
ALL	Ribbon Tubes	16-18
TLP2746, 2348Plus and 2348+	Label Rewind Tube	16-18
TLP2044 & TLP2046	Label Rewind Tube	24-28
LP2348 with peel bar	Label Rewind Tube	24-28
LP2348 with peel mechanism	Label Rewind Tube	16-18

Similar printer models are included for reference only.

Verify Tension

1. Insert the torque tool into the end of the tube to be measured.

2. Hold the appropriate tube's pulley or collar and rotate the tool and watch the tube and torque reading. Note when the tube slips. The reading just prior to the slip is the torque setting.



Tension Adjustment

1. Hold the appropriate tube's pulley or collar and rotate the outside of the tube until the slot on the end of the tube aligns with the inside set screw of the tube assembly.

2. Loosen the set screw.

3. Push the tube's clutch spring into the tube with the torque tools tip. The tool's prongs touch the clutch spring's stop collar. Pushing the clutch stop collar in increases torque and out decreases torque. Tighten the stop collars set screw to 11 inch-pounds torque.

4. Measure tube tension.

5. Repeat until adjusted properly.

Do not disassemble the tube!

Do not replace parts in the tube assembly.

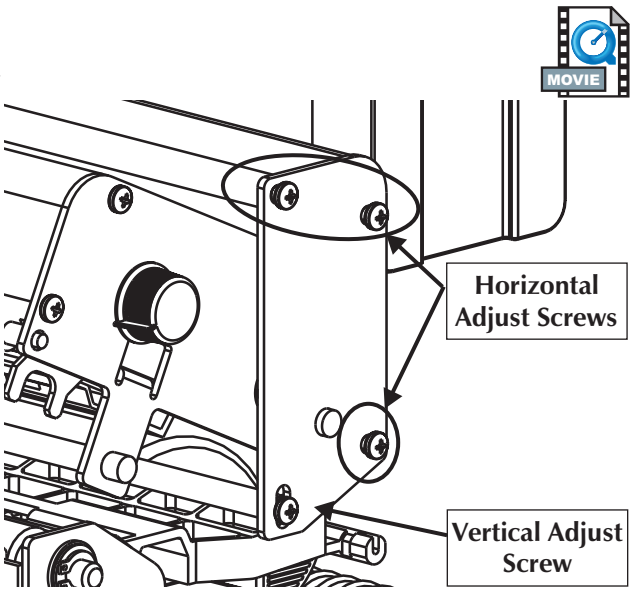
Preparations

Load 4 inch wide ribbon and media in the printer.

Presetting

1. Loosen the three (3) horizontal adjustment screws and push the side plate to align with the upper print mechanism's extrusion bracket profile (rear and top). Tighten the three (3) screws to 15.8 inch-pounds of torque.

2. Loosen the vertical adjustment screw and adjust ribbon adjustment shaft to be in the center of the vertical slot on the side plate. Tighten the screw to 15.8 inch-pounds of torque.

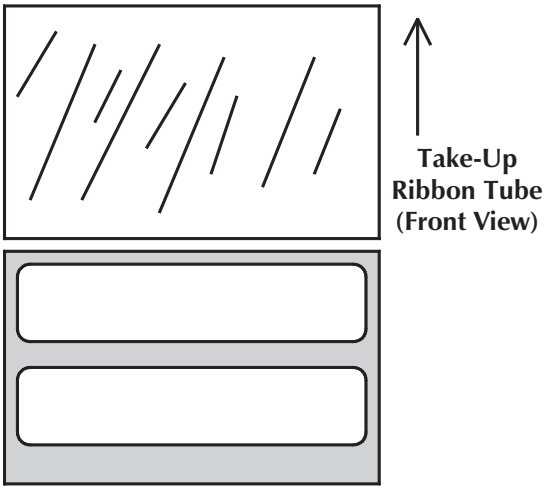


Adjusting the Ribbon Path

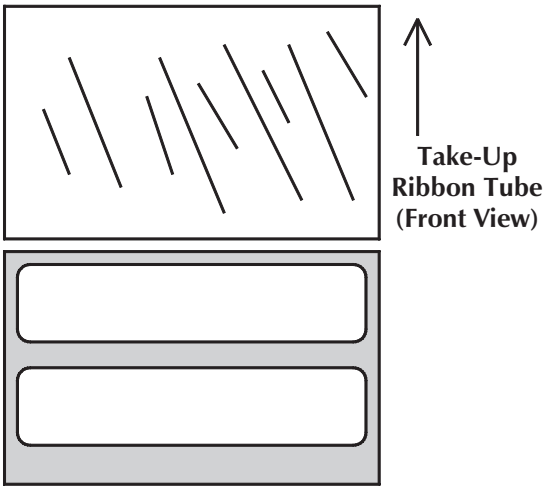
1. Close the print head and print or feed several labels.

2. Note the direction of the ribbon stress lines.

   Stress lines slanted to left side of printer indicate that the side bracket needs to be adjusted horizontally back towards rear of printer until stress lines run vertically on ribbon.

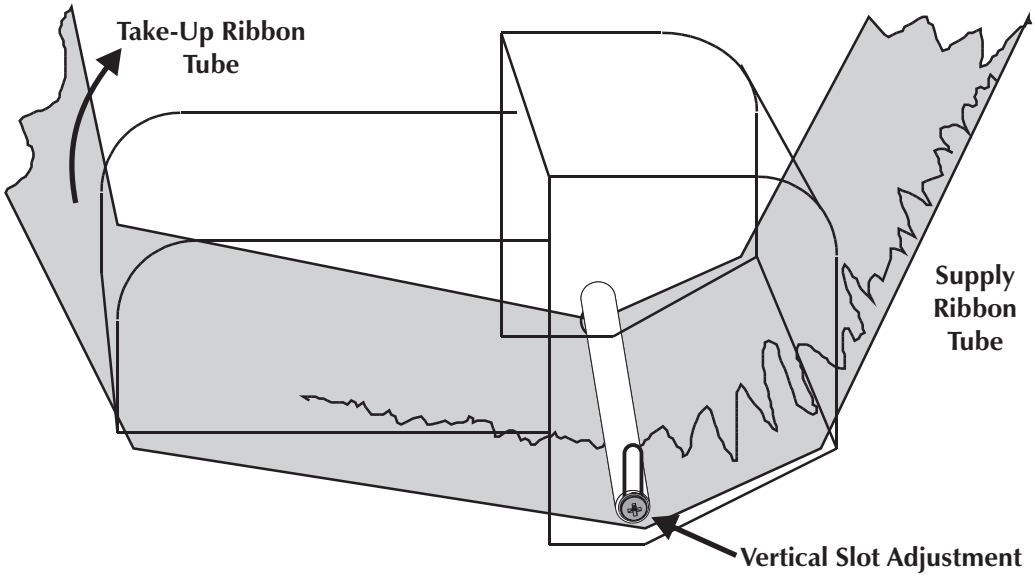


   Stress lines slanted to right of printer indicate that side bracket needs to be adjusted horizontally forward towards front of printer until stress lines run vertically on ribbon.



3. Loosen the three (3) horizontal adjustment screws and adjust. Tighten the three (3) screws to 15.8 inch-pounds of torque when the stress lines are vertical and barely visible.

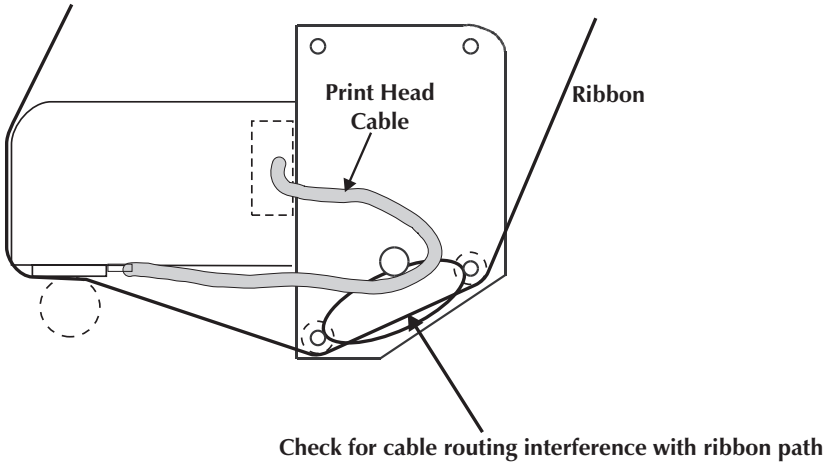
4. Loosen the vertical adjustment screw and adjust the ribbon adjustment shaft to correct stress lines in ribbon behind print head assembly while feeding media. Move the shaft in the vertical slot up or down. Position should be set so stress lines run vertically from ribbon supply roll.



5. Note the ribbon stress line in the front of the printer while feeding or printing labels.

   Steps 3 and 4 should be repeated until the front (take-up) and rear (supply) ribbon wrinkle and stress lines are vertical and minimized.

6. Verify the print head's cable does not extend into the ribbon path.



Printer Information Utility

The Printer Information utility is a proprietary service program intended for Zebra authorized customers and service organizations. The utility also includes Help files describing the functions and connection methods. The utility automates functions available through the EPL2 printer programming language. It is used to:

Re-set printhead life when printheads are replaced
Set the printer's serial number into a new main printer PCBA.
Set the units for odometer display in Inches or Millimeters.
Print a printer and printhead life information summary.

Preparations

A Windows™ based PC (Windows 95, 98, ME, 2000 or NT4)

Pre-Install USB aware printer drivers to enable automatic USB printer detection.

Tools:

Printer Information Utilities Installation File:
PrinterInformation.exe
The utility loads as a self extracting and installing Windows program.

An interface cable for the one of the available and supported interface ports:
Parallel (LPT1 or LPT2)
Serial (RS-232 COM1-COM4)
USB
Ethernet (10BASE-T UTP RJ-45 connection. Auto senses IEEE- 802.3, Ethernet II, IEEE- 802.2, and IEEE 802.2/SNAP frame formats)

Connecting to the Printer

1. Connect the printer to the desired PC interface: parallel, serial, USB or Ethernet.

2. Start the Printer Infomation utility.

3. In the **Printer** menu, select **Add** or **Auto-Detect** for connecting to the printer via the USB or Ethernet interfaces. Choose the printer's interface, serial or parallel. With the Auto-Detect, the printer will appear in the printer listings.

4. The printer name may be changed with the **Modify** selection in the **Printer** menu.

Printing Status Labels

1. Select the **Print** in the **Printer** menu and chose from: **Test Page** (Printer Status / Dump Mode Label), **Odometers** (active printhead and printer odometer readings), and **Head History** (Prints all printhead odometer memory stored readings (up to 10) and the printer odometer reading).

Setting the Odometer Display

1. In the **Tools** menu, select **Options** to change the odometer unit between millimeters and inches.

Resetting the printhead

1. After replacing the printhead, select the **Reset Head Odometer** in the **Printer** menu. **Only do this procedure once per printhead!** The printer records each printhead odometer reading in ten (10) memory storage locations. Resetting the printhead odometer increments the printhead odometer memory location pointer and clears that printhead record. After all ten (10) printhead odometer storage locations have been filled, the printer will return to the first location to begin re-use of the printhead odometer record locations. See the Head History report to check printhead odometer readings and usage.

2. **Important - Clean the printhead** if it was not cleaned immediately after installation. Oils and acids from handling will damage the printhead if not removed immediately.

Note - The printer's odometer can not be set or reset. New PCBA's odometers are set to zero by default.

Packaging for Shipment

To ship or store the printer, make sure all components are packed as shown in the figure below.

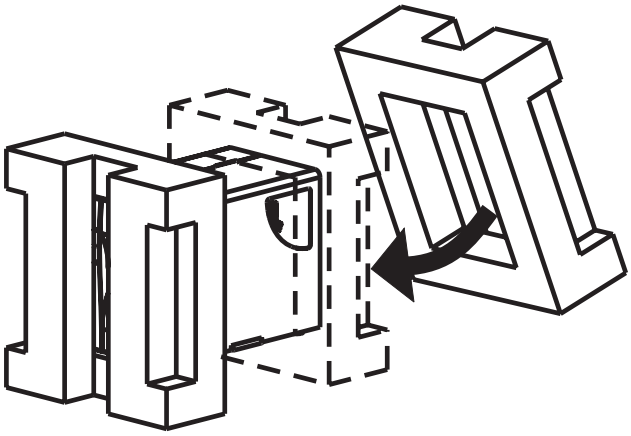
Printer Preparation

1. Close the printhead.
2. Place and lock the rewind bracket in the rear of the printer base.
3. Close the label dispenser (peeler).
4. Mount the lower front cover.
5 Tape (masking tape) the rewind clip to the rewind tube.

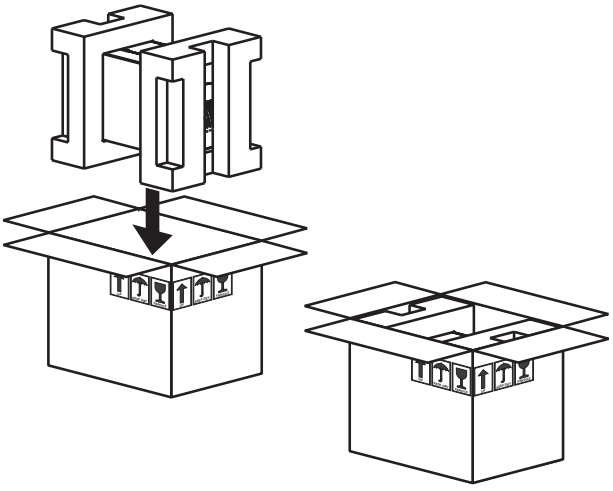
Packaging the Printer

Move the printer carefully. While the printer has sturdy construction, mechanical damage can certainly result from falls or rough handling.

1. Place the printer into the large plastic shipping bag to prevent the dust and vibration damage from the foam rubbing on the outside surfaces.
2. Put the two (2) foam end caps on the printer.

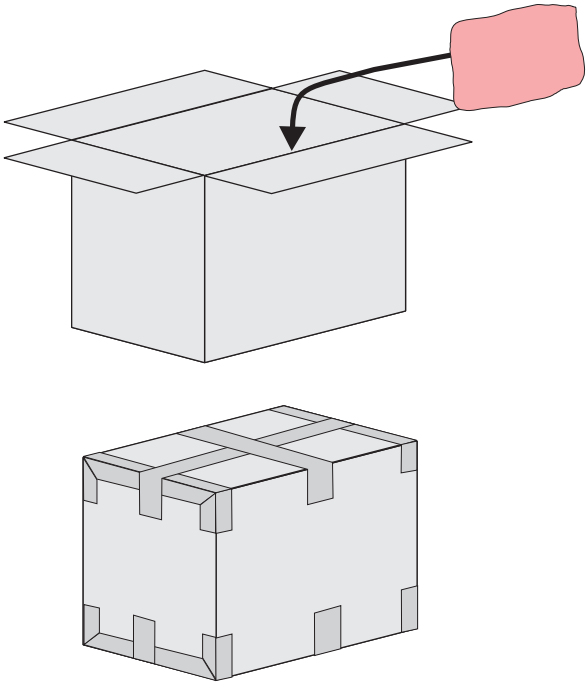


3. Seal the bottom of the shipping carton with reinforced shipping tape.
4. Place the printer with the foam end caps into the shipping carton with the printer's feet down.

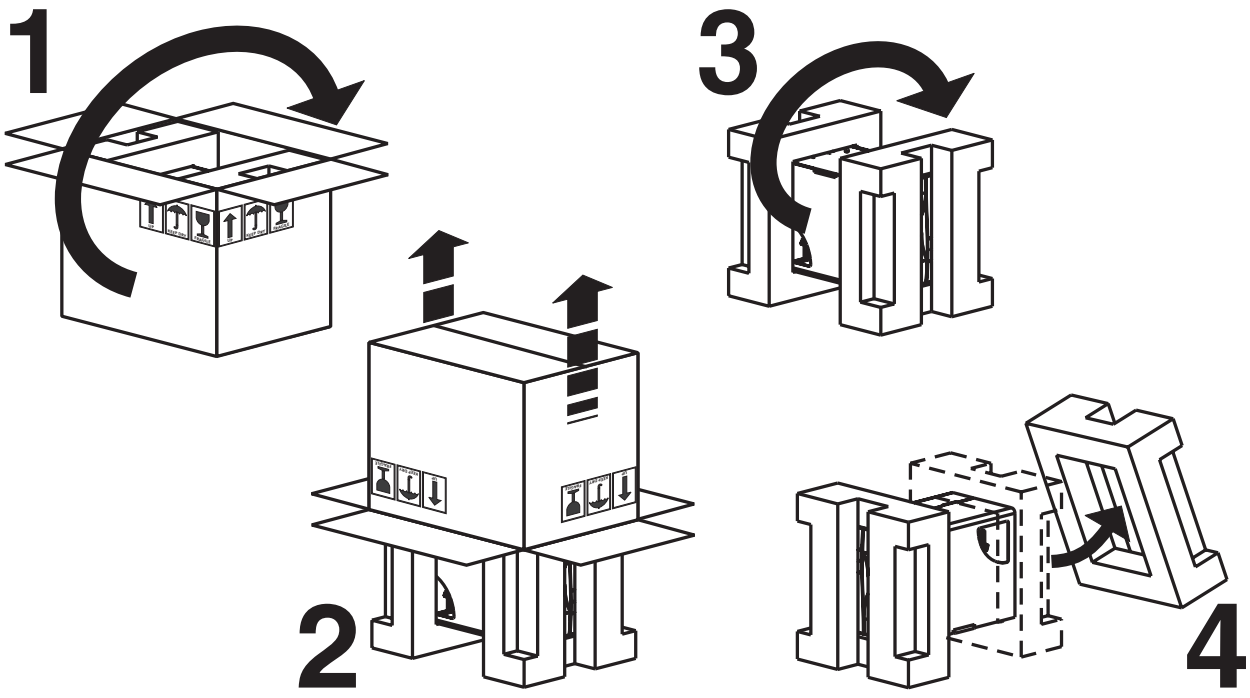


5. Place the power cord, cables, software, etc. in the bubble pack plastic bag and completely seal it with plastic tape or self sealing strip.

6. Seal the top of the shipping carton with reinforced shipping tape.



Unpacking Instructions



CLEANING AND MAINTENANCE

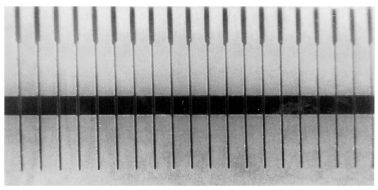
The printers are manufactured and tested under a strict quality management program. Zebra Technologies uses only high quality components and materials in its Zebra printers. Although only minimal routine maintenance is required, following these simple maintenance guidelines will ensure longer life with quality printing performance.

Shock Hazard
Always turn off the printer before performing any maintenance or repair operations. Wait for the indicator light to be dark, then unplug the power cord.

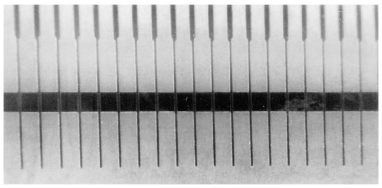
Extending The Life Of Your printhead

The printhead is the most critical component in your printer, and possibly the most delicate. It is a consumable item just like the brakes on your car, which will eventually wear over time. However, with ongoing careful attention and maintenance, you can extend the life of the printhead!

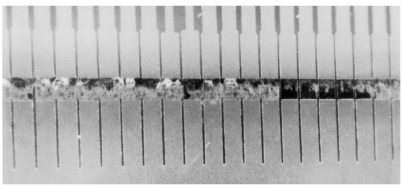
Below are photographs of three printheads. The first printhead is brand new. The second has printed over 1 million linear inches of thermal transfer labels and has been properly maintained. The third printhead has printed far fewer labels, but without proper care and maintenance, signs of abrasion and contamination build-up are evident.



New



Over 1 Million Inches
(Properly Maintained)



Less Than 1 Million Inches
(Without Proper Care)

Preventive Maintenance

For optimum performance, clean the printhead regularly after every roll of direct thermal labels.

To start, only use the cleaning pen or pre-soaked (isopropyl alcohol) cleaning swabs provided. Lightly blow or brush away any loose dust and lint particles within the print mechanism (i.e. rollers, media sensors, and printhead). NEVER use any hard, metallic, or abrasive objects—such as a screwdriver—to remove adhesives or other contaminants that may have built up on the printhead or platen roller.

Periodically use the Save-a-printhead cleaning film to remove printhead contamination buildup. (Part No.105950-047) The need to use cleaning film will very with media used, environmental conditions and printer settings.

Avoid the Contributing Factors to Premature printhead Failure

Print Head Care

The main factors that contribute to reduced head life are:

- **Touching the printhead!** Static electricity can discharge and damage the printhead. The body's oils and acids also damage the printhead.
- **Cleaning** - For optimum performance, clean the printhead regularly after every roll of direct thermal labels.
- **Abrasion** - Over time, the movement of media/ribbon across the printhead will wear through the protective ceramic coating, exposing and eventually damaging the print elements (dots).
- **Use of proper media** - Use only approved Zebra media. Non-approved media may contain chemicals or pre-printed inks that can destroy or dramatically reduce the printhead's life.
- **Temperature** - printhead density (heat) setting. Set the density to the lowest possible setting that prints a good image.
- **Print Speed** - Fast print speeds have higher friction levels on the printhead's surface.
- **Regular printhead Conditioning** - Use our Save-a-printhead cleaning film to remove printhead contamination buildup quickly and easily. (Part No.105950-047)

Basic Cleaning

The printer's media path allows for cleaning and clearing of media jams. The user can clean the printhead, platen roller and areas adjacent to the media path surfaces.

Keep your printer clean by periodically wiping it with a soft, lint free cloth dampened with 95% or higher isopropyl alcohol. Do not use abrasive cleaners as they will damage the surfaces.

The cleaning pen is for cleaning the printhead only!

Do not use the cleaning pen for general cleaning.

Cleaning the Media Path

Use a brush or vacuum to clean the media path (except the printhead).

If a label jams inside the printer, remove the label and any adhesive residue immediately. Adhesive may spread throughout the printer's media path if not completely removed. Many adhesives are permanent and have short "set" times.

Cleaning the printhead

As you use your printer, the printhead may become contaminated resulting in poor print quality. Whenever new labels are loaded into the printer, the printhead should be cleaned with a cleaning pen.

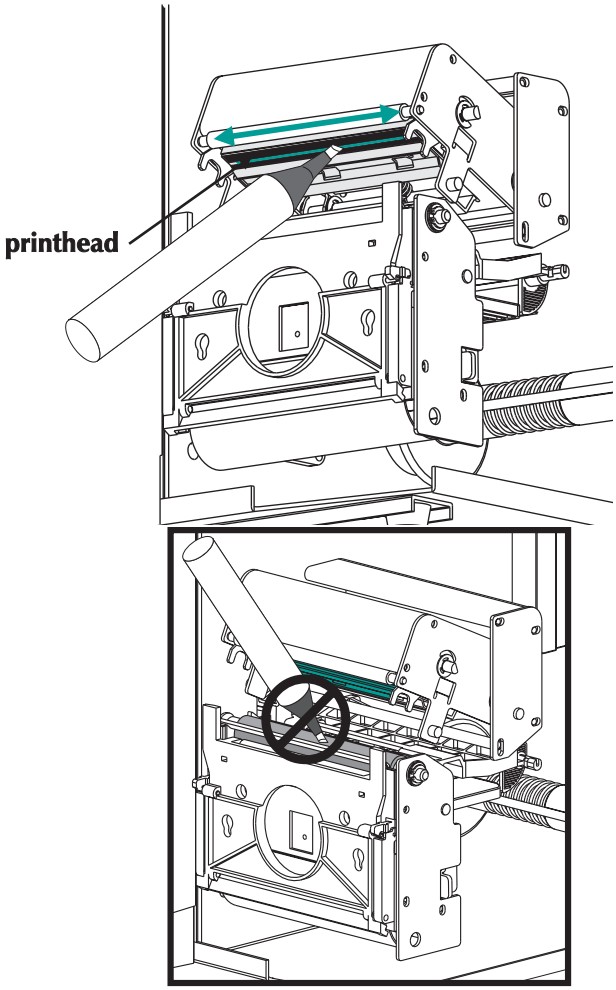
Never touch the printhead. Always clean the printhead with a cleaning pen or a cotton swab moistened with 95% or higher isopropyl alcohol to gently remove dirt and dust.

1. Open the printer and the printhead carriage.

2. Gently rub the cleaning pen across the amber area of the printhead.

   Allow the printhead to dry for 1 minute before loading labels.

   Do Not Clean the printhead with sharp objects! Only used approved cleaning materials.



Save-a-Printhead Cleaning Film - Kit P/N 44902

What is Save-a-Printhead cleaning film?

A specially coated film that removes contamination buildup without damaging the printhead.

What are the benefits of Save-a-Printhead cleaning film?

Extends the life of your printhead.
Reduces maintenance downtime and the cost of replacing a printhead.
An inexpensive, easy and quick way to remove contaminants without having to remove the printhead.

When should you use Save-a-Printhead cleaning film?

When you see degrading print quality that looks like faded print or a failed print element(s) that cannot be corrected by cleaning with the pre-soaked cleaning swabs.

Save-a-Printhead Cleaning Film Maintenance Procedure

1. Remove power from the printer.
2. Open the printhead, remove media from the print mechanism.
3. Clean the printhead.
4. Position the Save-a-Printhead film in the print path, placing the glossy side down away from the printhead (matte side up).
5. Close and latch the printhead.
6. Slowly pull the full length of the film through the print mechanism.
7. Again, clean the printhead.
8. Reload media, close and latch the printhead.
9. Print labels and inspect for improved print quality. If quality has not improved, contact our Technical Support staff.

Cleaning Film Usage Issues

Only one pass is required to remove contamination buildup.
Each strip of film can be used up to 10 times.
Discard the strip when residue buildup or other contamination is apparent.

RECOMMENDED SERVICE

To maximize service life (before maintenance is required), the total service life, and eliminate potential problems that are harder to detect or test for, it is recommended the the service technical perform the following procedures:

Clean the printhead (See Cleaning and Maintenance)
Removes loose contaminate build-up to prep the printhead for conditioning.
Condition the printhead (See Cleaning and Maintenance)
Use the **Save-a-Printhead** cleaning film to remove printhead contamination buildup. (Part No.105950-047)
Verify the DC voltage setting (see the DC Power Verification & Adjustment procedure, 980428-105) If the DC voltage setting is too low, the motor torque may be too low to print or dispense (peel) labels in the worst case print conditions. If the voltage is set too high the electronic components may be damaged.
Verify the label rewind tube's torque setting (see the Tube Tension Verification and Adjustment procedure, 980428-154). The rewind tube's clutch torque level slowly degrades with use. Labels may not dispense properly if this setting is too low to pull the backing off the labels.
Print a Printer Status / Dump Mode Label with the AutoSense routine (see user's manual) and once with the Printer Information utility (see procedure 980428-157). This verifies that the printer can print (take special note to the slanted lines as a basic printhead test), sense labels, and communicate with software.
Last Step After Test & Repair - Clean the printhead